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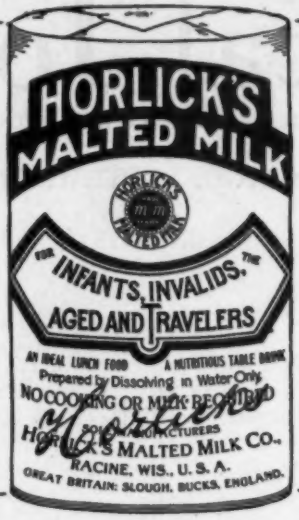
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# ILLINOIS MEDICAL JOURNAL

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## Original Articles

### THE TREATMENT OF CATARRHAL DEAFNESS *


M. F. ARBUCKLE, M. D.

EAST ST. LOUIS, ILL.


The treatment of middle ear deafness, as the treatment of most diseases, must depend upon the cause. Usually when the cause is removed the deafness will be relieved. Nearly always the etiological factors are found in affections of the eustachian tube in some part or other, and, not infrequently, in diseases in the immediate neighboring district. We must also remember that certain constitutional diseases as syphilis, anemia, constipation, so-called lymphatic diathesis, bad hygienic surroundings, certain occupations and habits, such as the use of alcohol and tobacco to excess, also at times have an important part in the etiology.

In children adenoids cause the trouble in a very large majority of cases and this is easily remedied. Closure of the os tuba in the adult, or narrowing of the lumen of the tube along its course, is a very much more serious matter. While there are many recent cases which will clear up by inflation and the use of bougies, either separately or combined, there are also many old cases who have relief for only a very short period, and finally, after going from one physician to another, give up in despair. These are the ones I wish to speak of particularly.

In a simple, chronic salpingitis, inflation about every second day, preferably with the catheter, frequently is sufficient. When it is not, the use of the bougie, in addition to catheterization, beginning with the smaller size and increasing the caliber as the tube opens up, at intervals of about every fourth day for a few times, after which about once a week usually suffices.

The use of drugs in the tube has not been as successful as in other regions. However, I believe dionin in a 3 per cent solution about every fourth or fifth day, and some of the silver preparations, probably do some good and should be used. They may be applied directly. Of course, you are all familiar with the method of making these applications. This may keep the patient comfortable, but must be continued indefinitely.

In those cases in which hypertrrophy of the lower turbinal is present, with thickening along the lateral wall and around the os tuba, the treatment which I have found to be satisfactory, and the only one with which I have been able to get permanent results, is one devised by Sluder,* which consists in the use of the galvano cautery, making three incisions on the posterior end of the turbinal, one of which extends back to the anterior lip of the os tuba. The cavernous tissue covering the tip of the turbinate is destroyed. The electrode is made of two naked copper wires with the usual plain platino-iridium tip, and covered by adhesive plaster along the shank after it has been shaped as desired. The tip is bent into the shape of a fish hook, and with the aid of a palate retractor and a large postnasal mirror, which serves both as a mirror and as a tongue depressor, the operation is done in three steps. First, a line beginning about 1.00 to 1.25 cm. from the posterior end in the middle and extending backward with a downward curve, through the dependent part of the cavernous tissue, to the tip. From the same point a line is made back through the middle of the body to the posterior tip and extending along the lateral wall back to the anterior lip of the tube. The upper curved incision starts from the same point as the others, extending backward with an upward curve, and joins the second and first lines at the tip. The instrument is then removed, and if the cauterization is required for breathing purposes the operation is completed from the front by using a straight electrode, the tip of which can be shaped so as to remove much or little of the cavernous tissue of the turbinate, as is required in the judg-

*Read at the sixty-seventh annual meeting of the Illinois State Medical Society at Bloomington, May 9, 1917.

*A galvanic cautery operation for the lower turbinate. Sluder: Laryngoscope, 1916.

ment of the surgeon. The nose is then closed with cotton during the day for a few days and removed at night, without any other treatment. It requires from 3 to 6 months—frequently the latter—to begin to get results, but the results are usually satisfactory and permanent.

In studying the anatomy of the tube, we find in that portion of the mucosa which lines the cartilaginous part of the tube many glands and lymph nodes.

This part of the tube is in close relation with the sphenoid sinus when it extends far down in the pterygoid process—sometimes being separated by bone as thick only as egg shell. The fibres of the tensor veli palatini muscle vary in thickness and height of origin, and when they do not extend well up into the scaphoid fossa and along the tube, or when they are unusually thin, the walls of the tube and the sinus are approximated accordingly.

Given a case with such anatomical settings, plus a sphenoid sinus suppuration, and you will readily see that extension by contiguity will take place if the inflammatory condition becomes chronic. The treatment is, of course, directed toward relief of the sinus suppuration.

There is another class of cases in which closure of the tube is due to crippling the nerve supply, through an involvement of the nasal ganglion and consequent failure of action of the tensor veli palatini and levator veli palatini muscles. This is more or less periodic, coming on with ganglion pain, and the duration depends upon the degree of ganglionic involvement. This is relieved by injection of the ganglion.

### DISCUSSION (ABSTRACT)

Dr. I. M. Miller (Kewanee) thought that while it is always due to some inflamed condition or stenosis of the eustachian tube, there may be secondary causes. He has noticed many times that the side the septum is deflected on will have catarrhal deafness, or in some instances, the deafness will appear with an abnormal condition of either of the turbinates.

If he can't get results with five or six inflations, he considers the prognosis is bad.

Dr. Beck (of Chicago) noted two especially interesting points in the paper; one, the anatomical relation between the sphenoid sinus and the eustachian tube; the other, the affection of the ganglion and the treatment to the ganglion to relieve these conditions.

Dr. Pierce (of Chicago) found that tubal affection is due, in almost every case, to disease elsewhere in the nose or throat, and that the base of the pathological changes which take place in the cavum is insufficient ventilation, resulting in peremia, thickenings about the delicate conduction apparatus in the cavum; adhesions formed probably in many cases immediately, so that the prognosis of so-called tubal catarrh should be given with very great care in every case.

After these dislocations have occurred for any length of time, they are permanent, and when they are permanent, of course, it makes no difference what we do, whether it is removal of adenoids, of turbinated bodies or treatment of ganglion. It is a purely mechanical matter, and those obstructions to hearing so-called, obstructions to the tube, although they have been removed, have very little effect on the pathological changes which have taken place in this delicate, sound-conducting apparatus.

Dr. Corwin (of Chicago) would hesitate about using bougies or any mechanical devices, even the catheter, except in a very delicate way about the eustachian tube in any condition bordering on acuteness. The milder our treatment, the better, with active elimination and mild emollient treatment, in those early stages of acute catarrhal conditions, realizing that it is ventilation, drainage, that we are after. He has had a good deal of satisfaction in using very small doses, say, one five-hundredth or even less, of atropin in combination with phenacetin and other things, to get a slow, gradual dryness of that early stage of acute deafness with a lot of secretion that complicate these cases.

Dr. Holinger (of Chicago) emphasized the prognosis in acute as well as chronic cases. The histories of these patients is nearly uniform—"I have been hard of hearing for the last four or five years." There is hardly ever a case that we get much earlier. Thus old adhesions in the middle ear with retraction of the membrane give a bad prognosis. But the common idea of the general public that a case of hard hearing is an incurable disease we should change carefullly and systematically.

In treating the chronic hypertrophies of the lower turbinates—a very frequent cause for the acute and sub-acute cases of catarrhal deafness—he has discarded the galvano cautery on account of the reaction. He frequently amputated the free end of the lower turbinate, and the result on the deafness is quick, gratifying, complete.

Dr. Stein (of Chicago) insists upon a thorough inspection of the nasopharynx, so as to relieve any condition that may be present there, especially conditions in the fossa sigmoidea, liberating that with my finger, and thereby possibly improving a condition that is a considerable factor in provoking and keeping up the catarrhal condition.

Dr. Ostrom (of Rock Island) has used the cauter-

ization as advised without affecting the patient's hearing after permanent changes have taken place.

Dr. Andrew: (of Chicago) noted conditions in the nose that have their influence upon the mucosa lining the eustachian tube through the nerve system and not through the extension of contiguity of tissue. Thus irritations in the nose or throat may produce a swelling at some distance from the part irritated. For instance, in closing of the eustachian tubes temporarily, or if the conditions last for any length of time, it may produce retrograde changes in the way of atrophy.

Dr. Arbuckle (closing the discussion): I neglected to pass some plates which I had which are drawings from the cross section which showed the relation of the eustachian tube to the sphenoid sinus in the class of cases which I mentioned. The tube has a bristle inserted in the opening. Now, there are two papers also that I wanted to mention and which I forgot to do. One of these is by Dr. Dixon in Oklahoma City, in which he describes the method of making local applications to the eustachian tube with the aid of the Holmes pharyngoscope. I have been looking for another paper—I don't recall the name of the doctor who wrote it—in which the cauterization was done after the method described and in which four punctures, so to speak, were made around the eustachian tube. I thought that somebody in Chicago wrote that paper. I haven't been able to find it, at any rate, and I haven't had a chance to use either one of these methods, so I can't say anything about them.

Dr. Holinger says he gets disagreeable reaction after the cautery. I have never had anybody complain of reaction. I have never had any trouble with it. After the amputation of the posterior end, I have had one or two bleed a good deal. I have never had anything of that sort happen with the cautery. Of course, the post-nasal cautery is not an easy thing to do. It is not as easy to do as it is to cauterize a turbinal from the front, but I have never tackled one of them so far that I didn't get done. Sometimes it is a little hard to control a patient, but if the palate and the pharynx are well cocainized, it is not impossible. There is one suggestion in regard to your failure to get results that I thought I would suggest—do you destroy the posterior end of the turbinal?

Dr. Ostrom: No.

Dr. Arbuckle: There are three incisions made with this method I spoke of. Probably there is a good deal more destruction of tissues, a good deal more scar formation than you have. Dr. Andrews has mentioned swelling in other regions and right in the neighborhod of where the nerve is affected. I think the deafness caused by sphenopalatine ganglion neuralgia probably comes as an inhibition of the motor fibers through the irritation o fthe sensory fibers in the ganglion, because the thing comes and goes with the pain. When the ganglion is cocainized, the deafness will clear up temporarily, and when the ganglion pain clears up, the deafness will clear up very frequently without any apppearance of inflammation.

## WHAT THE STATE CAN DO TO PREVENT BLINDNESS*

Willis O. Nance, M. D.,

Consulting Oculist to Cook County Hospital and the Illinois Charitable Eye and Ear Infirmary; Chairman City Council Committee on Public Health.

CHICAGO.

It is indeed gratifying to those who have given attention to the subject of the prevention of blindness to note the continued inerest—yes, the accelerated interest—manifested in this subject the past few years by public health officials in many parts of our country. Much of this activity has doubtless been largely stimulated by the very excellent support given the movement by the National Committee for the Prevention of Blindness and its several state units, the American Medical Association, through its specially appointed committee, state medical associations and industrial corporation activities. The subject of this paper will permit me to speak only of the work done and that which can be done by governmental agencies. By the word "state" I do not allude to our own commonwealth but to the more general application of the term, "governmental," which would include national, state, county and municipal activities.

The state has almost unlimited powers if properly employed, to bring about stupendous results in the prevention of blindness. The power to enact and enforce intelligent and effective laws is one of the great levers it possesses and perhaps as important or more so is the facility at its command for spreading the gospel of education. The latter is a very potent factor in law enforcement as every public official knows. My experience for several years as a member of the law-making body of one of our large cities has demonstrated to me positively and unequivocally that the mere passage of laws and ordinances is by no means all that is necessary to effect desired results. This applies especially to health laws. Education of the public and the securing if possible the public's sympathy and co-operation in law enforcement is a decided asset. Some six years ago when I secured the passage of an ordinance in the city of Chicago eliminating the common towel in public places—one of the first laws of that kind ever passed by any municipality if not the first—a hue and cry went up against its enforcement by many firms and corporations

*Read at the 67th annual meeting of the Illinois State Medical Society, at Bloomington, May 9, 1917.

who were affected. They ridiculed its provisions and sought to invalidate its purposes. But with the publicity given the ordinance and its relation to the public health and its adoption by most large cities of the country and by the legislatures of a good proportion of the states, sentiment has entirely changed and few if any of the enlightened public today would resort to the old order of things. For awhile after the adoption of the ordinance the railroads entering Chicago would remove the roller towels hanging in their cars as they reached the city and again replace them as they left the corporate limits, but who today with the campaigns of education that have been carried on the past few years in health matters believes that for one moment, if the law was repealed, that they would resort to the old order of things? People for generations had been carelessly using that eye disease transmitting relic of filth with its train of suffering and anguish, but not until a law was passed relegating it to the scrap heap was the attention of the general public directed to its danger.

Ophthalmologists had ever recognized its dangers, had preached assiduously against its retention, but without satisfactory definite results for the reason that their preachments had not been given the necessary publicity. So I say, gentlemen, that the mere passage of laws will not always correct evils and bring about the intended results but frequently the adoption of measures, backed up by publicity and the strong arm of the state in their enforcement will accomplish all that is desired.

Of course, every oculist knows that the chief cause of preventable blindness is ophthalmia neonatorum and all are familiar with the legislation that has been adopted in this and other states in the past few years looking to its prevention. We are all also familiar with and are gratified at the earnest co-operation that has been manifested by health department officials in the enforcement of this legislation. In Chicago and in the state at large, public health officials are co-operating conscientiously with those of the Society for the Prevention of Blindness in an effort to check this serious disease and with unusually happy results. In other states where laws have been in effect for a longer period and where they have been enforced, the disease has been materially reduced. The medical profession is today paying more attention to the employment of the Credé method of prophylaxis than ever before and the public itself is fairly well familiar with its use and efficiency. What is needed today, I believe, is a more effective regulation of the practice of midwifery and I trust that this may more certainly be brought about in the near future. Immediate compulsory reporting of all births to local health officers would also do much in controlling the disease.

Great strides have been made during the past few years by public health officials in the fight against trachoma. Not only have the health departments of New York and Philadelphia and the Illinois board shown commendable activity along this line but the Federal government itself, in addition to maintaining supervision over immigrants entering this country, has busied itself in the actual treatment of many of these cases in isolated places, namely, in Kentucky, Tennessee, Alabama and other states. In addition to the treating of some 19,000 cases during the past year in these localities, six mountain hospitals have been established by the Public Health Service for the free treatment of the diseases and clinics have been established at which instruction has been freely furnished gratis to physicians. The national government can do much to prevent blindness by a continuation of this service. Better regulation of housing by the state, an educative campaign illustrating the contagiousness and serious consequences of the disease and the importance of preventive measures in certain parts of our own state where the disease has been common for a generation, the work to be carried on by the public health officer in conjunction with the medical profession would result in the prevention of considerable blindness.

Industrial accidents are still responsible for too many cases of blindness. The large number of occupational accidents is appalling. During the past year in the state of New York five persons were killed, twenty-one permanently crippled or maimed and 174 suffered serious temporary injuries on an average every working day. It is authoritatively stated that in all the wars of a hundred years, the number killed, wounded or permanently maimed is not nearly equal to the grim toll taken by industry in the same period. It can be truly said that much progress has been made in the prevention of eye accidents in the

industries during the past few years. In the shops of one large steel concern, the American Steel Foundries, the number of eye accidents was reduced 75 per cent in two years by the use of protective goggles. Most of the large corporations voluntarily furnish such protectives and do their utmost to encourage their use by employes. The state should require employers to furnish proper goggles and should penalize the employe in awarding compensation in case of injury sustained if it is shown the injured employe refused to wear the safety device. This law is said to be in force in Wisconsin. It would seem that the general adoption of such a statute would stimulate the wearing of goggles by employes.

Chip guards on lathes and other machines for the protection of near by employes as well as the operator should be provided where indications warrant it.

Laws for the better protection of the eyes of those engaged in mining might well be adopted and enforced. Protection against injury from explosions and better lighting would tend to reduce the number of those whose eyes are destroyed or permanently diseased in this industry.

The practice of removal of foreign bodies from the eye by fellow workmen should not only be discountenanced but positively forbidden. This practice should be specifically prohibited by law and the law should provide that a reduction in the employe's compensation should apply in case of award for damages. A wise provision of law might include the prominent posting of such information in the shops where all amployes might become conversant with such provisions.

Sufficient and properly directed illumination of shops will do much to prevent industrial accidents of the eye and public officials might well direct their activities in a careful study of the shop lighting problem and to seeing that the illumination of shops is as near perfect as possible. Frank Allport estimates that more than 25 per cent of shop accidents are due to poor illumination. He concludes that proper lighting preserves eyesight, improves the efficiency of labor, increases the manufactured output and profits, is economical and cheap and decreases accidents.

Ocular accidents to children by the careless use of toys, air-rifles, scissors, knives, etc., are not occurring, in my experience, with the same degree of frequency as formerly. Parents, as a rule, I believe, are becoming more particular about the character of toys allowed their children. The sale of the air-rifle, responsible for the loss of many eyes, should not be permitted. There is really no excuse for its existence and it is a decidedly dangerous instrument in the hands of children. The Chicago city council last year passed an ordinance prohibiting its sale; this prohibition should be made state wide. The dangerous "water-core" golf ball should also receive the legislative taboo.

A more strict regulation of the sale and use of wood alcohol would reduce the number of cases of preventable blindness. The publicity given to some serious instance of poisoning by this preparation recently have caused the legislatures of several states, including our own, to enact more stringent laws governing its handling and the more energetic enforcement of present laws. In one state where the law was violated and several deaths and a number of cases of blindness resulted the druggist who sold the poison was sentenced to prison.

A study of the effects of the employment of wood alcohol in the industries, the investigation to be conducted under the supervision of the Federal government, has been urged by resolution of the board of directors of the National Committee for the Prevention of Blindness. It is to be hoped that this authoritative and disinterested investigation will be made and that it will result in federal legislation and enforcement of statutes backed by the strong arm of our national government.

It is gratifying to note the more active interest that is being paid on the part of the state to the hygiene of the school room. Every oculist knows the importance of intelligent lighting, proper posture, appropriate print and suitable grading of pupils in their intimate relation to defective eyesight. The prevalence of defective eyes and ocular diseases among children is shown in the recently published report of the Chicago Health Department which shows that in 1916 there were 13,984 children in the public schools of that city whose eyes needed expert care and attention. Much can be done by public officials in bettering the condition of the school rooms throughout the state and by seeking the co-operation of parents in giving prompt attention to ocular defects in early childhood.

With our nation now at war, the state, that is, the government, can and doubtless will give careful consideration to the prevention of injuries to the eye incident to warfare. Morax and Moreau who made a statistical investigation into the nature and mode of action of the projectiles which injure the visual apparatus, with a view to devising means for its protection conclude (abstract in *The British Journal of Ophthalmology*, February, 1917) that: "although no practicable protective apparatus could be of use in stopping bullets or large splinters of shell, almost half the ocular injuries in war are caused by small bodies which could be stopped by some sort of gauze shield which might also stop spent, or almost spent, fragments of medium size. Unfortunately, such an apparatus would more or less diminish the visual acuity of the soldier wearing it, but a shade could be worn protecting the tempero-orbito-nasal region and perforated by an opening a little larger than the cornea which would reduce the vulnerable zone by about three-quarters."

In the brief time allotted the presentation of this paper I have endeavored to concisely point out some of the things the governmental agencies can do to prevent blindness. Their part in this humane and worthy movement is a highly important one. Backed by the strong arm of authority many accomplishments can be brought about that it would be quite impossible to bring to a completion in any other way. Education of the public and a close co-operation between governmental officials, be they Federal, state, county or municipal, the medical profession and the public will materially strengthen the good work for the prevention of blindness. In discussing the control and elimination of communicable diseases in Illinois, Dr. C. St. Clair Drake, the director of public health, at the Champaign meeting of the State Society last year very truly said: "You must deal more with the people than with the community authorities. You must resort to popular education, for in the final analysis education is the 85 per cent effective weapon in the prevention of preventable disease."

Let the city councils, state legislatures and our national legislature continue to put upon the statute books intelligent laws, and have our executive enforce them, but let them also carry on liberally their educational propaganda direct to the people. The importance of this feature of law enforcement is being more recognized every year by the immense amount of publicity work being done. All credit to the work of the various committees for the prevention of blindness, the American Medical Association, the National Committee, the Illinois Society and the work of the state and local departments of health. Let us give them all our unreserved support and co-operation in their well-directed efforts to save the eyesight of our citizens.

30 North Michigan Avenue.

DISCUSSION (ABSTRACT)

DR. WESLEY HAMILTON PECK (Chicago) advocated the enactment of well-considered legislation supported by publicity for the prevention of communicable eye diseases.

The illumination in the factories should not be too intense, but well directed in the case of lathes, and the men should be placed in the proper position.

Many skilled workmen should be obliged to wear corrective lenses. This matter is receiving increased attention since the enactment of the compensation laws.

Large placards should be placed around the factories warning the men against attempting to remove these foreign bodies by licking them out with their tongues and taking them out with dirty fingers, dirty hankerchiefs and frequently toothpicks that they have used when they have pyorrhea.

An enormous lot of ophthalmia neonatorum is the result of ignorant management of implements by midwives.

Druggists should be required to place a distinct label on each bottle stating the dangerous character of wood alcohol.

One of the most gratifying advances that has been made in this state in the last twenty-five years has been in regard to abolishing the foolish Fourth of July fireworks.

DR. TIVNEN: We have with us today Miss Van Blarcom, who is secretary of the Illinois Society for the Prevention of Blindness. I am sure we would be very much pleased if Miss Van Blarcom would address us.

MISS VAN BLARCOM: Dr. Nance's paper has so thoroughly covered the field of the work for the prevention of blindness that there is really very little more to say except perhaps to explain that the work of the lay society which I represent has for its sole object that of bringing together the men who are capable of treating eye cases and the eye sufferers themselves. As Dr. Nance has said, about half of the people who are blind are blind from preventable causes, and excepting in a few instances they go blind because they have either not had medical treatment at all or inadequate treatment or the medical care had not been given speedily enough. Our object is to

secure medical care which is adequate and prompt for eye sufferers. That really is the sum and substance of our effort.

In order to accomplish this, we must have support through legislative action and various official regulations. In addition to that, we are, of course, absolutely dependent upon public opinion. However, public opinion doesn't always bring care, unless we can back up our recommendations which are conveyed through the channels of publicity work.

I have in mind, for instance, a very recent case which came under our observation in Chicago which exemplifies the importance of not only educational work but legal backing. One of the oculists in Chicago referred to our society a baby suffering from ophthalmia neonatorum, which, in his opinion, was in danger of going blind very speedily unless hospital care was given. The doctor felt that the conditions in the home were such that he couldn't possibly do justice to the child. He hadn't time to labor with these people, who were foreigners, and asked if our society would see to it that the baby got into the hospital. We take up such cases in the frame of mind that prompted the man to carry the message to Garcia; if the babies can be gotten into the hospital, we ge them in somehow.

We found it quite hard to labor with the parents. They were of the opinion that if they continued to bathe the eyes with mother's milk or used the mother's wedding ring to stroke the upper lid, there was no question that the baby would come out all right. We realized that the situation was rather serious, and in the end we are forced to the unpleasant duty of going to court, swearing out warrants for the arrest of these parents and taking the baby out of their hands under compulsion. In that case, no amount of education would have saved that baby from blindness, but, backed up by the arm of the law, we were able to get for that child the necessary treatment.

In connection with school children, we are confronted with very much the same sort of situations, and you may be interested to know that there is a steadily increasing number of seriously defective eyes among the school children referred to our society for the purpose of securing adequate medical attention which the parents are not willing to get.

The recent legislation for the preservation of eyesight in Illinois, of course, has given the lay workers a very powerful weapon. The most important one, in my mind, is the requirement that all cases of baby sore eyes be reported to the local department of health. Of course, for such men as are here this is a matter of no importance. The patients in your care are no better off whether the eyes are reported to the Department of Health or not, but in the midwife cases, and the cases that are in the hands sometimes of the general practitioners who don't always preserve the ideals of the medical profession, the baby is much more apt to get satisfactory care if there is an official record of this case, and, in the midwife cases, of course, it is possible for us to go in and resort to high-handed methods and demand that the baby be given a chance by having prompt medical care.

Dr. Nance has referred to the wood alcohol question, and I don't know whether he has heard of the law that has reecntly gone through the legislative body of the state. I got word just the other day that a law requiring that all wood alcohol in the state of Illinois and wood alcohol under any name and all preparations containing wood alchol should bear the same label, that is, a poison label with the skull and cross-bones. We feel that if this is backed up by education and the prosecution of offenders, it will be the means of preventing a good deal of blindness.

The midwife question is certainly a very acute one, and you may be still further interested to know that although the effects of bad midwifery are much more far-reaching than the destruction of infant eye-sight, it seems to devolve upon the prevention of blindness workers to concern themselves with the regulation of midewives, and so, with the very wonderful cooperation of the State Board of Health, we are working toward what we consider a fairly comprehensive plan for the control of these practitioners. We feel, first, that they should be trained. They should be brought up to a minimum training if they are to be allowed to assume their very grave responsibilities. They should give evidence of this training by passing a State Board examination, and their work, after license, should be limited to attendance upon normal cases only. They should be required to call physicians when there is any deviation from the normal, and they should give nursing care to the mothers, teach the mothers how to take care of their own babies and give such care as the visiting nurses give. The State Department already examines midwives. It is just now publishing a book of rules which sharply limits the work of these women, and we are supporting Dr. Drake in an application for an appropriation which will make possible the employment of midwife supervisors who will go about watching the work of these women and seeing that they follow the rules adopted by the State Department of Health. This will result in debarring from practice those who are obviously unfit, and, although we feel that it is going to accomplish a good deal more than the saving of babies from going blind, it is going to be one great help in the preservation of the eye-sight of infants.

After we have gotten baby sore eyes reported, all cases cared for, wood alcohol labeled and failure to do so reported, school children looked after, we are certainly going to do away with half of the inhabitants of the State Blind Asylum at Jacksonville. The support of legislative control and the official bodies, and, of course, the medical profession spells success in that work.

Dr. Ostrom (of Rock Island) did not think there was a man in the room who would go into a boiler factory or into some of our big factories and stay inside of the boiler in July and August with a temperature away up and keep one of those unbearable

goggles on his face under any condition and do it day after day. We have men in this organization like Dr. Allport, Dr. Tivnen, Dr. Nance, who, he believes, could have enough influence with our manufacturers of goggles to help effect a change. The goggles should be made so that they can be put on comfortably, say, with a cylinder bridge, solid enough and yet not too heavy.

Dr. Burkhardt (of Effingham) recalled that four or five years ago he presented a paper before the Chicago Ophthalmological Society upon "Ophthalmia Neonatorum" and that the Society appointed a committee to take up the matter and stimulate a propaganda along the lines that were brought out in this paper. Since that time the State Board of Health has placed more stress upon the prevention of the condition which produces a great deal of our blindness. He advocated legislation that will make it practically criminal on the part of the attending physician or midwife who does not make use of the proper means for preventing ophthalmia.

Dr. Sherman (of Aurora) noted the irritation of the eyes from the use of bright lights on automobiles.

Dr. Tivnen: Dr. Burkhardt has referred to the committee appointed by the Chicago Ophthalmological Society some time ago, when he read a paper, a symposium on the subject, in conjunction with the Chicago Medical Society. I had the honor of being the chairman of that committee appointed by the Ophthalmological Society. We endeavored to do some work, but found the problem a very difficult one indeed, there are so many angles to it. It is splendid that we have in Chicago now a society known as the Illinois Society for the Prevention of Blindness which have such an efficient secretary as Miss Van Blarcom to take up this work. She is devoting her entire time to it, and I feel that every eye society should coopate with her in every way they can and in the same sense, in order that the work may be systematized. I would suggest that her society cooperate also with this body and with the Chicago Ophthalmological Society to the end when any important measures are under way that there would be a consultation and conference between the secretary and officers of this section, who represent the medical profession of the entire state, and also with the Chicago Ophthalmological Society in Chicago who represent not only the men in this special line of work in Chicago but in many of surrounding towns who are members of that body, that they should all enter into conference on any legislation or any particular plans that are going to be put through. Miss Van Blarcom, of course, will have the cooperation of every medical man and all his influence to bring this work to a successful conclusion. I say that because the angles of this problem are far-reaching, and many times it requires considerable tact and diplomacy, so that results may be accomplished in the end and nobody should be hurt.

Miss Van Blarcom: I am so heartily in accord with what Dr. Tivnen has said that I am really very grateful to him for having said that, and I should like to explain that while our society is only a year old, the Ophthalmological Society in Chicago has already adopted resolutions pledging itself to work with us and to expect a reciprocal action from our society, and I can only stress what I tried to intimate, that we consider this your work. It is purely our function to bring eye sufferers under medical care, and our various courses are directed entirely with that in mind, and we feel so strongly that it is necessary for us to be one with the medical profession that the Chicago Medical Society is going to devote an evening, I think it is to be May 23d, at which this entire question of the lay work for the prevention of blindness will be discussed before the body of the Chicago Medical Society, in order that not only the eye men but the general practitioners and all of the doctors connected with that body will understand exactly what the hope of our society is. If it were in order for you to consider such a thing, it would be very deeply appreciated by us, if this section would feel that we are a sort of a subsidiary to you in all of our work, and we should like to have you go on record as wishing not only—it isn't that you work with us, but that we work with you. We are simply a supporting arm, to be a link between the medical profession and the uninformed lay public, and we should like to feel that you did have sufficient concern about our methods to confer with us and to take such action as you thought necessary to bring about a very close relation. I don't mean cooperation on paper and just here. I would like to pay a tribute to the medical profession in Chicago for their attitude toward this new work. We felt that we might perhaps be criticized by some of the men for following up a number of their cases, which we have done, but without a single exception, duing these past fourteen months, every doctor in Chicago that we have come in contact with has been more than cordial in his attitude and has made it possible for us to help him, and, of course, that is what we wanted to do.

Dr. Peck (of Chicago): I make a motion that the the Chair appoint a committee of three to draft a resolution in accordance with Miss Van Blarcom's suggestion and report it back to this section before the day closes for the consideration of the Society. (The motion was seconded by Dr. Nance and unanimously carried.)

Dr. Tivnen: I will appoint the committe just a little later.

Dr. Nance (of Chicago) (closing discussion): I want to thank the Society for the generous discussion of this paper. There is just one point that I want to refer to, and that is the point that was brought up by Dr. Ostrom, of Rock Island, relative to the protective goggles in use in industrial plants. I realize that what he says is absolutely correct. The one trouble in foundries and plants has been that the foremen will say, "Yes, we furnish protective goggles to our employes, but we cannot get them to wear them."

The explanation as to why the employes do not wear them is very properly given by Dr. Ostrom.

Now, a great deal can be done along this line if the gentlemen who are present today, who are doing work for these various corporations throughout the state will simply take the matter up with the foremen or preferably with the general manager of the corporation and discuss the subject with him. I know that in two instances I have had the matter up, the very matter that Dr. Ostrom alludes to, with the general managers of two corporations, calling attention to the fact that it is unjust, it isn't right to ask employes to use goggles promiscuously without any attempt whatever to fit them so that they will be comfortable. If these goggles are furnished to the employes, liberally and so that they fit with a degree of comfort, then if the employe does not wear them under those circumstances, I favor a law that will penalize the employe in case of an award for compensation for damages, and due notice being given by a posting of such a notice upon the place in the shops. That will have a tendency, I believe, to induce the employe to wear these protectors.

DR. TIVNEN: I will appoint on the committee suggested by Dr. Peck: Dr. Nance, Dr. Peck and Dr. Burkhardt and ask them to confer and report to us at the opening of the afternoon session, or sooner, if, they can.

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## A NEW METHOD OF DEALING WITH THE NASAL SEPTUM*

JOHN A. CAVANAUGH, M. D.,
CHICAGO.

Science is constantly on the alert for improvements and always ready to accept anything that will show progress over old ideas. I believe I have succeeded in developing a method of operating upon the deformed nasal septum that will appeal to all who try it.

I will not burden you with the embryology, physiology, anatomy or causes of septal deformities, as I have nothing new to offer other than can be found in books and journals dealing with these subjects. However, I firmly believe the deformities of this anatomical structure cannot be dealt with unless one masters the anatomical field in which he works, otherwise there will be many failures.

As this paper is concerned only with my operation upon septal deformities it is not necessary to speak of the many methods advanced by other colleagues except to show why my method is a step forward to something better.

*Read at the sixty-seventh annual meeting of the Illinois State Medical Society at Bloomington, May 9, 1917.

I irrigate the nasal passage with a 1 per cent solution of the official 10 per cent Tincture of Iodine, applying to the obstructed nostril a glass nasal bulb attached to a douche bag. Have the patient bend well over, holding the bag just high enough to have the solution flow over the posterior end of the septum and return through the other nostril, but never high enough to flood the post nasal space. Apply a 1 to 1,000 adrenaline chlorid over both sides of the septum with a cotton applicator, followed by a 10 per cent cocaine solution, until anesthesia is complete, then making a second application of adrenaline chlorid to the area to be incised.

The incision is made on the side of the deflection or convexity, just posterior to the mucocutaneous junction, carrying it from above downward through the mucous membrane to the cartilage and bone and onto the floor of the nasal cavity. This incision can be varied to suit the individual case but up to the present I have not found it necessary. Having made the incision it is an easy task to elevate the mucous membrane with the perichondrium by a Freer elevator back onto the ethmoid plate and down to the apex of the ridge if one be present. If the ridge be absent carry the elevation of the mucous membrane down to the floor or below the deflected area. Should a thickening be present opposite the anterior ends of the middle turbinates carry the elevation of the mucous membrane above it.

The cartilage now being freed from the mucous membrane on the convex side, I pass my cartilage shave (Fig. 1) through the incision back to the ethmoid plate, making pressure toward the cartilage and drawing the instrument along the lower part of the cartilage to the initial incision, and I find a narrow strip of cartilage removed, leaving the perichondrium of the mucous membrane of the opposite side exposed.

Should the obstruction be due to the deflection of the cartilage, introduce the septum shave in a like manner at the bulging area and make a similar groove through the bulging center parallel with the initial groove. If the perpendicular plate of the ethmoid has shared in this deflection, I elevate the mucous membrane and periosteum from the ethmoid plate beyond the deflected area if I have not already done so, and introduce my septum forceps with a roughened surface on the inner side of one of the blades, Fig. 2.

The roughened blade is introduced into the nostril of the mucous membrane elevation and through the incision so as to rest upon the exposed bony ethmoid plate, while the other blade which is smooth passes through the other nostril and rests upon the mucous membrane. In this way one can fracture the ethmoid plate in several places which then can be freely and easily pushed over into the median line.

Where a ridge is present I proceed as before, removing a narrow strip of cartilage with my septum shave from the upper surface of the ridge. Most of these ridges are due to the displaced lower edge of the quadrilateral cartilage; this strip of cartilage left below my septum groove is loosely attached to the perichondrium and easily removed. Should the bone partake in this ridge I make an incision through the periosteum on the upper border of the premaxilla; then introduce the elevator and raise the mucous membrane and periosteum from the ridge and remove with my septum gouge, Fig. 3.

The thickened tuberculum septi can usually be shaved down if the septum shave can be introduced above it. When the tubercle is bony or when I am unable to pass my septum shave above it, I shave off a little of the cartilage below and use my blunt end double edge knife (Fig. 4) to elevate the mucous membrane on the opposite side and make an antero-posterior incision through the cartilage; then I introduce a biting forcep to remove this thickened area.

If only a spur be present, make a vertical incision just anterior to the beginning of the elevation of the spur and elevate with an elevator to the tip of the spur anterior, above and below; then with a blunt *right angle* elevator elevate from behind forward cutting off the cartilaginous tip. I now take my septum gouge (Fig. 3), placing it just anterior to the elevated portion of the spur and an assistant with a mallet drives it through the septum. I hold the instrument so that it travels parallel with the mucous membrane of the opposite side which is separated from the bone as the septum gouge travels, acting as an elevator and removing the spur at the same time.

Having removed all obstructing areas of the cartilaginous or bony septum I now direct my attention to the edges of the incision and if they do not come close together I insert a couple of sutures of No. 0000 catgut on a Killian needle, drawing the cut surface together, this heals faster and prevents the scabbing which usually occurs when the edges are left separated.

I pack on the side of the operation, with two or three finger cots partially filled with absorbent cotton or with mending tissue splints made in the shape and near the size of the septum. I spread these over the septal surface holding them in place by absorbent cotton applied on the outer side of the tissue. The splints have been soaked in a 1 per cent Iodine solution, and allowed to remain in the nose from 24 to 48 hours, depending upon the amount of deflection to be overcome. Remove the packing, wash with a continuous irrigation of normal salt solution, having the head bent well forward and the pressure of the fluid just sufficient to carry over the posterior end of the septum and flow from the opposite nostril. Never introduce a cotton applicator into the nose at this time; it is liable to traumatize and produce a hematoma. Should the middle turbinate on the concave side be hypertrophied so as to interfere with the septum when pushed back to the median line, the portion interfering should be removed.

I have performed a number of operations using this method with excellent results and no perforations. In one case where a scar the size of a ten-cent piece was present, if the regular operation had been performed, a perforation would result. With my septum shave I was able to correct the deformity without a perforation.

Dr. Tydings of Chicago demonstrated an operation last year which was very ingenious and satisfactory in many cases, but I found the method inadequate to remove the thickened septal tubercle when present, and to remove the bony obstructions posterior to the cartilage.

In conclusion, let me say, the advantage of the operation outlined in this paper are many:

It is easy to do the operation.

It takes less time to perform the operation.

It is practically impossible to have a perforation.

It is impossible for the tip of the nose to drop.

The flapping of the membrane during respiration never occurs.

Age makes no difference in results.

Previous operation as the Ash, Gleason and sawing, will not interfere with this operation.

Fig. 1. Fig. 2. Fig. 3. Fig. 4.

Fig. 1—Author's straight septum shave.

Fig. 1-A—Author's right and left septum shave.

Fig. 2—Septum bone forceps.

Fig. 3—Author's septum gouge.

Fig. 4—Author's blunt-end double edge knife.

DISCUSSION.

Dr. Oliver Tydings (of Chicago) referred to the operation he presented to the society last year and thought there is room for both operations.

He had occasion to use one of Dr. Cavanaugh's instruments in a case of thick exostosis very high up on the perpendicular plate of the ethmoid and it enabled him to do what he could not do with a pair of forceps of any kind.

Dr. Kahn (of Chicago): I have only a question. I would like to know how Dr. Cavanaugh pushes the cartilage over, or if he takes it up, or what he does with it.

Dr. Cavanaugh: I leave it in and pack afterwards.

Dr. Tydings: There is one point in my method, that you can hold that cartilage absolutely in place. You get one of these ordinary shawl pins and cover the head of it with sealing wax, and you can absolutely, by following out the method I laid down there, keep that cartilage in place, and keep it in place for a week or ten days, if you wanted to.

Dr. Corwin (of Chicago) appreciated both the cuts, which reminded him of those splendid representations that the late William E. Ballinger used to give in putting forward these operative measures and the instruments.

He confessed that he was guilty of recommending the same sort of procedure a few years ago, not with instruments as good as these or anything like that, but with the ordinary instruments.

Dr. Deal (of Springfield) asked Dr. Cavanaugh what success he has with the injection method for these elevations around sharp projections, injection under the perichondrium for elevation.

Dr. B. F. Andrews (of Chicago) asked the doctor how he cares for the anterior end of the septum that is protruding into the opposite nostril, whether he does anything with it, whether he removes it or tries to replace it in the median line.

Dr. Holinger (of Chicago) made the suggestion that he try to make the forceps lock, like the lock of the old Nagley Obstetrical Forceps. Then he can hold the mucous membrane and perichondrium away from the septum, insert one branch, and do the same thing on the other side and close the forceps afterwards in place. That would avoid the possibility of squeezing prts of the mucous membrane which might become necrotic afterwards.

Dr. Hagler (of Springfield) complimented Dr. Cavanaugh on his great advance in this line of surgery, in that he is practically making a bone insertion, saving the tissues, giving a normal septum instead of taking out large quantities of tissue which should remain there and give support to the septum.

Dr. Bergeron (of Chicago), who assisted at Dr. Cavanaugh's operation yesterday, was particularly impressed with the simplicity of his operation, and particularly so in this, that the patient had a tremendous bony deflection hugging the middle turbinated body, and, after elevating the membranes with these little instruments, was able to resect that part of the septum without perforating the opposite side. He saw the patient following the operation and found that the patient had perfect results, with the septum on a perfectly straight line.

Dr. Cavanaugh (closing the discussion): I surely appreciate the expressions of the various gentlemen in discussing the paper. I realize that I haven't touched on all kinds and shapes of deflections, for the simple reason that you can't do it in ten minutes, but there is no condition of the septum that I know of and have seen that you can't take care of in this way, at the same time preserving the greater part of your septum. I don't think there is any question but that most of you men have seen, after a thorough resection of the septum, removing of the cartilage and the bone, patients complaining of flapping of the membrane. In this operation, there is no flapping of the membrane, practically all of the structure of the septum are retained. Age makes no difference in this operation. You can do this operation in the very young, which many of you object to, claiming that it has an effect upon the development of the nose. The greater part of the nose, or the greater part, rather, of the septum,

is left in, so that if there is any development, as the case advances, in this region, there is nothing to interfere with the progress of that case along its natural and normal lines. I think, leaving a portion of the cartilage that we do here in these types of cases, that there can be no changes.

One of the doctors asked me if I removed the bone. Unless there is a very prominent projection or spur which would extend away out, and then I use the septum gouge which you have seen and elevate only on the one side, but as far as curvatures are concerned, I leave the bone in, cracking it as I have shown you here before.

Dr. Kahn asks if I leave the cartilage in. I leave the cartilage in. You have absolutely no trouble whatsoever in placing that cartilage back, pushing it back from one side to the other. Of course, it depends upon the shape of your deflection and what you have, and all that, as to just how you are going to deal with this cartilage. It will depend upon the shape of a cartilage just how you will deal with that cartilaginous area, but if you have a very marked angle in this region here, we will say, as you sometimes will see, extending out like this instrument does and in that way, then I don't remove this area. I go down in the area of greatest convexity and remove just that area, and then you can push your cartilage back in its original position or in what should be the normal position. I don't remove but very little structure, only the area that will be removed by this septum shave.

Dr. Corwin spoke about the artistic work. I am sorry that I can't lay claim to it, but I can't. I had one of the students do this work for me.

Dr. Deal asks about the injections. I don't use the injections with this method at all. I make my incision, as you see it here, and then elevate with this elevator. In the old method I used to inject. Now, I will make one exception to what I have just said about injection, and that brings up the question Dr. Andrews has asked, how I deal with a case where the cartilage is pushed over in front to one side and bulges over on the other side. I do inject in those cases, because we have to carry the incision down and out on the skin tissue. Where that is done I do inject, but that is only for the purpose of the anesthetizing of the skin surface and not for elevating purposes. Where I make that incision well forward at the anterior part of the cartilage I then elevate on the side of the convexity back in the nasal cavity, not on the concave side, excepting, for instance, we will say this here would represent the bulging on this side and the projection of the anterior part on the other side. My incision is made on the side in which the anterior part of the cartilage is obstructed, and then I elevate back on the side which is bulging, we will say, on this side, from my original incision on the other side. Now, then, I elevate back on the side of the concavity, that is, the side in which this anterior part of the cartilage is obstructing, only to where the cartilage comes to the medial line, not all the way back, just to the area in which the cartilage comes to the medial line, and I will remove, we will say, that part of the cartilage, leaving the balance of the cartilage here and going back with my septum shave remove, as you see here, on the convex side, without elevating on the concave side.

Now, that leaves support to your nose, while leaving a pillar in there and that great area of cartilage, whereas in many of these cases that most of the men do, where they have that deflection, you remove all that cartilage and bone back as far as the deflected area, and you get the sagging of the nose, or a very lax, flabby condition of the tip of the nose, which you don't get when you remove in this way.

Now, Dr. Holinger spoke about this Kyle's instrument. You will remember that the bone back in this area is very thin. It requires but very little pressure, and in the twenty-five cases that I have already done, I haven't noticed any necrosis, because the pressure is not great enough to cause that, and there is no stripping off of the mucous membrane on the other side. There is just the least little pressure that requires a fracture of certain areas. I don't fracture, as this pressure shows here, but one area. I fracture just a little of the area where the instrument is, and fracture that so that there are probably three or four little fractured areas.

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## TREATMENT OF MEMBRANOUS CATARACT *

H. W. WOODRUFF, M. D.,
JOLIET, ILL.

Following the ordinary operation for the extraction of cataract, or following iridocyclitis or penetrating injuries, there may result more or less opaque membrane in the pupillary area.

That which follows cataract extraction unless complicated with lens substance, consists of very thin, scarcely visible capsule. This form, if it interferes with vision, is dealt with by the well known operation of discission. This operation is usually performed by the use of the Knapp knife needle, Ziegler knife needle or some similar instrument.

My personal choice is the Ziegler instrument brought out by him and described in his operation of the V-shaped iridotomy which is published in the Transactions of the American Medical Association, 1908. While not partial to this operation I am sure the instrument is the most satisfactory for the ordinary needling operation.

Thicker membranes often result from inflammatory deposits from the iris and ciliary body or proliferation of the capsule itself with lens substance remaining unabsorbed.

These dense membranous cataracts, almost like

*Read at the sixty-seventh annual meeting of the Illinois State Medical Society at Bloomington, May 9, 1917.

leather in their density, cannot often be successfully treated by the operation of discission. Not only is the operation difficult but is considered dangerous from the traction made upon the iris and ciliary body. For this reason various other methods have been advocated. The membrane may be cut by scissors through a linear incision in the cornea. Punches have also been used to punch out and remove pieces of membrane. These membranous cataracts are usually complicated by adhesions of the iris, so that the iris must be cut together with the membrane.

In volume III of Norris and Oliver's System of Diseases of the Eye, Herman Knapp describes an operation for these cases which he states he had used from the beginning of his practice. He calls it Irido-cystectomy and describes it as follows: "Under cocaine anesthesia a Beer's cataract-knife pierces the cornea about three or four millimetres above the lower corneal margin, opposite the scar from the extraction, and transfixes the iris or pupillary pseudo-membrane by an opening three or four millimetres long. The knife is withdrawn. With a blunt hook the lower lip of the iris wound is seized, drawn out of the eye, and abscised close to the cornea. Eye bandanged. There are scarcely any accidents worth mentioning. The healing is usually prompt, and yields mostly surprisingly good visual results. Among the failures after this operation I have noticed reclosure of the new pupil and suppuration, but they are rare. The infection in the cases of suppuration must be ascribed to the waking up of pyogenic microbes which had entered the eye at the first operation and lain dormant in the inflammatory products of the iris and capsule, for an infection by the instruments can easily be excluded. Infective material may, however, be carried into the eye from the conjunctiva by prolapse of the vitreous, which is not infrequent during this operation."

I have practiced this operation myself for almost twenty years with the same good results mentioned by Knapp. One remarkable case will illustrate.

A number of years ago a young man was admitted to the Eye and Ear Infirmary with a large gumma of the iris in his only remaining eye. Prompt antisyphilitic treatment produced rapid absorption of the gumma and subsidence of the iritis. It had, however, been present long enough and the inflammatory process had been so severe that the lens had largely become absorbed, leaving in the pupillary membrane a dense mass consisting of capsule lens substance, inflammatory exudate and adherent iris. The operation of irido-cystectomy gave him perfect vision with his proper correction.

I wish also to report a rather unusual case of similar character which was successfully dealt with by using an operation published in 1912 by Elschnig and called Iridoëctomy.

In August, 1916, a young man, 22 years of age, consulted me regarding the possibility of securing vision in his right eye. A dense white membrane filled the pupil. The iris more or less attached as indicated in the drawing. There were two scars in the cornea, one caused by the entrance of a piece of steel which occurred seven months before. The foreign body had been removed by a skilful operator and afterwards a cataract operation had been performed, which accounted for the linear scar at the upper corneal margin.

Later the patient had claimed entire loss of vision

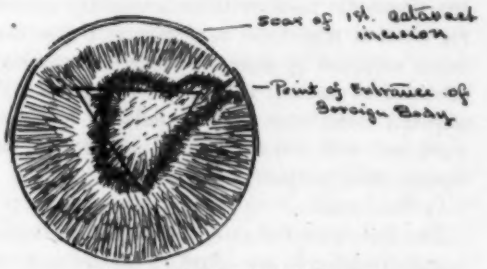


Fig. 1. Elschnig's Iridoëctomy.

and even perception of light and for that reason he had been advised to have the eye enucleated.

When he consulted me he was on his good behavior and readily located the light in any situation in his range of vision. The eye being perfectly quiet and tension normal, I expressed the opinion that there was a chance to improve his vision, perhaps to the extent of his being able to see large objects about the room. The patient being very anxious to have some vision in this eye, although the other eye was normal and having been impressed with the fact that the operation was not without danger, I ventured the operation of discission with the Zeigler knife. This proved inadequate on account of the toughness of the membrane and the eye continuing quiet for about three weeks I performed the Elschnig operation which is described in Vol. IX, p. 6673, of the American Encyclopedia of Ophthalmology, as follows: "With a narrow Graefe knife, a puncture and counter puncture are made as for cataract incision. When each cut is about 3 mm. long the knife is withdrawn, De-Wecker's scissors are introduced first at one opening and then at the other; the sharp blade being plunged through the iris and capsule and a cut made downward and to the median line; the second cut joining the first. Then a third cut is made horizontally and the

tissue thus isolated, withdrawn by iris forceps." See Figure 1.

There was a considerable loss of fluid vitreous and also a hemorrhage into the anterior chamber which prolonged convalescence about a month, at which time he had a large clear pupil and could readily see large objects in the room. With+11+1c ax 90, his vision was 6/20ths.

In performing any of these operations my experience is that besides the usual preparatory measures, special attention must be given the anesthesia.

These operations often seem to be more painful than the ordinary extraction of cataract, probably on account of the iris involvement with consequent more or less traction upon it. A 10 per cent solution of cocaine is therefore used during fifteen minutes preceding the operation.

An unusual amount of fluid escaping during operation need not be particularly alarming as in the traumatic cases or those previously operated on vitreous may have been lost and this space being occupied by aqueous which will naturally continue to run out during the operation. The essential thing is to operate only on absolutely quiet eyes with normal tension and normal perception and projection.

In conclusion:

The three essential things which I have desired to call attention to are—first, in the ordinary discission operation, use the Ziegler knife needle. And second, in the dense membranes, good results may be obtained by either the Knapp Irido-cystectomy or the Elschnig Iridoëctomy.

DISCUSSION.

Dr. Suker (of Chicago) has found Elschnig's operation very successful in treating it that way, with the exception of using a cataract knife. The vitreous will stand a straight cut with the cataract knife with less danger than with the scissors, and a straight, see-saw motion will cut that cataractous membrane with less danger and damage to the eye as a whole than the scissors.

He has found it a good practice to massage both eyes very briskly for five or six minutes to see if there is any reaction in the eye which is to be operated upon, and all is well if you get none in the opposite eye which is supposed to be healthy. But, if there is a certain amount of reaction in an eye of this kind, please do not touch it.

The majority of cataracts will have a membranous cataract, to a certain extent, irrespective of almost any method you use. Now, if this hyaloid membrane does become a little hazy and opaque, it is best treated with a Ziegler knife. In doing those, you want to be very careful also not to make your incision up high nor very low down, but preferably in the center. Keep as far away as possible from the ciliary zone. Otherwise you will set up an excessive amount of irritation and you will lose the result that you wish to accomplish.

Even with brilliant results in the beginning, five to ten years later, the vision, instead of being as we had it in the beginning, has dropped down to little better than light perception and projection. With a pupilary membrane occluded by a deposit of this kind the results are invariably poor in the end.

It behooves us then to be very careful, as far as the prognosis is concerned. Give these patients all the way from sixty to eighty grains of urotropin five or six days in advance of the operation, and see that their alimentary canals are absolutely clear and clean. Bacteria will not grow in excessive alkilinity.

As far as the anesthesia is concerned, instead of using the 10 per cent. cocaine, he suggested either a 1 per cent. or 2 per cent. of novocaine hypodermatically or directly after you have made your incision in the eye or substance. You can then handle the work almost with impunity as far as pain is concerned.

Dr. Darling (of Chicago) thought one of the reasons for poor late results is the loss of vitreous at the time of operation.

A method employed in these dense membranous cataracts which tends to save the loss of vitreous is to have the patient seated in a reclining chair so that the highest point in the eye is at the upper part of the limbus. An incision is made through the cornea and down through the iris. Then an incision is made, one blade being put back into the vitreous cavity and a piece of iris is cut out. Having the patient in this position, even when the eyeball collapses, if we don't put much tension on the eye, we will lose very little liquid from the eyeball.

If you put a crystal of cocaine or a solution of cocaine and adrenalin into the anterior chamber after making your primary incision and wait a few minutes, it will be very satisfactory. As a rule we don't wait long enough for the anesthesia of the iris.

Dr. Gradle (of Chicago) noted that practically all of our failures are due to a latent organism within the eyeball itself and not contamination by the instruments and we should make it an invariable rule to be assured of the sterility of the conjunctival sac before we open the eyeball.

In experiments on a hundred cases, making smears and cultures from the same eye, about 45 per cent. of the cases showed organisms by cultural methods, whereas only about 20 or 21 per cent. showed the same organisms by the smears alone. We must make cultures, and we must use fluid cultures to obtain the final results. Incidentally, a little point that we found very useful in the Elschnig Clinic was the removal of the streptococcus by the use of frequent irrigations with a one-five-thousandth solution of oxycyanide of mercury. This proved more efficacious in sterilizing the conjunctival sac than any other form of medication.

Dr. Tivnen has been using the method described

by Dr. Woodruff for some time, and finds it is the most satisfactory for dealing with any particular type of capsular difficulty. The Ziegler knife, as well as the ordinary methods of discission with a tough capsule exert too dangerous traction on the eye and the opening in quite a number of the cases tends to close. With the De Wecker instrument you get a large opening and a very satisfactory pupil, without much tendency to close.

To avoid the loss of vitreous brought about by the manipulation of the De Wecker instrument the steps of the operation, particularly the opening through which you pass your De Wecker, must be carefully planned and made large enough.

The kind of De Wecker instrument that you use is of very great importance. If the blades are too wide they should be filed down so that they are very fine and the point of the instrument very sharp.

Dr. Woodruff (closing the discussion): The one point in this operation—the use of the De Wecker scissors is to get away from the use of the knife, no matter whether it is the cataract knife or the knife needle, because with them traction is made, and in addition to that the vitreous is more apt to be disturbed by the use of a knife than by the use of scissors, and the same point applies that Dr. Suker made in regard to the sharpness of the knife, to the sharpness of the scissors. Also the same manufacturer is endorsed. He can sharpen a pair of De Wecker scissors just as well as you can sharpen a cataract knife, so that in plunging the scissors through the membrane it is unnecessary to go into the vitreous cavity to that depth that you can hardly help but go when you are using a knife.

I don't know very much about this hyaloid membrane that Dr. Suker speaks about, but I remember the late Dr. Green of Dayton used to occasionally, after his intracapsular operations, talk about needling the hyaloid membrane. It always seemed to me as though the less you disturbed the hyaloid membrane or the vitreous, the better for the eye.

I also have had no difficulty with the 10 per cent. solution of cocaine. Of course these cases are in a certain sense desperate cases anyway, and your anesthesia will certainly aid in keeping your patients absolutely quiet, but, of course, if Dr. Suker's method is of advantage, I am for it. I believe in novocaine most thoroughly and do use it subconjunctivally, but for this particular purpose I haven't used it.

As far as infection and the preparation of the patient is concerned, which Dr. Gradle has referred to, I certainly agree with him in that, and am heartily in favor of any method of examination that will reduce the danger of this operation or any other ocular operation.

In conclusion, I just want to emphasize the fact that your prognosis must certainly be guarded in these cases, because these eyes are eyes which have either been operated upon or have been seriously injured or have been very seriously inflamed, and therefore they are an unknown quantity.

## PRIMARY MASTOIDITIS, WITH REPORT OF A CASE *

ROBERT SONNENSCHEIN, M. D.,
CHICAGO.

The question of the primary or secondary nature of any infection or new growth is certainly most interesting. Why one process almost invariably appears primarily in one tissue and why another attacks this same part of the body only secondarily, is a question that cannot always or even very often be satisfactorily determined, at least not at first glance.

Whether there is something specific in the nature of the invading tissue or infectious agent which leads it to attack or infiltrate certain parts is uncertain. Whether, on the other hand, certain conditions such as traumatism either in the form of actual physical injury, as a blow, or subjection of the tissue to sudden changes of temperature or to chemical alteration in the body fluids, may produce, as the late Nicholas Senn so often said, a *locus minoris resistentiae* is also not definitely known. Perhaps a combination of the two factors will account for the phenomenon.

Within the field of oto-laryngology several conditions show a most decided preference for primary or secondary involvement of certain parts or tissues. Permit me the trite statement of a few facts so well known, at least to members of this section.

As regards the larynx for instance, carcinoma is usually a primary process; while tuberculosis is almost invariably secondary to the pulmonary infection. To explain this occurrence is most difficult with reference to the larynx, but in considering the usual infection of the ear our problem is quite simple in most cases. The direct communication between the tympanum and the mastoid cells via the aditus ad antrum allows the easy extension of an otitis media. In fact since these cells really form a part of the middle ear it is no wonder that Politzer made the assertion that in at least 95 per cent. of all cases of acute middle ear abscess there is almost at once infection of the mastoid cells. This does not, however, mean that the process develops into an actual mastoiditis; in fact the involvement subsides in the vast majority of cases.

The acute mastoiditis is thus practically always secondary to an acute otitis media. Un-

*Read at the sixty-seventh annual meeting of the Illinois State Medical Society at Bloomington, May 9, 1917.

fortunately, circumstances have prevented the writer from consulting the literature in detail, but we all know that a primary mastoiditis is a very rare occurrence. That the case to be reported is an absolutely bona fide one, I, of course believe, since it apparently had, if you will pardon the pun, all the "ear marks" of one. You will, however, be the judges in the matter.

Mr. H. C. T., aged 34, printer by occupation, came to the office December 16, 1916, with the history of having had a "cold" a short time previously. He complained of pain around and back of the left ear especially at night during past three weeks. No history of tuberculosis or lues. No Wasserman was made.

Examination at this time showed so far as the nose was concerned a septal deviation to the left. The pharyngeal mucosa was injected and the lymphoid tissue hypertrophied. There was some tenderness and swelling of the left cervical lymph glands.

As regards the ear be it said that the membrana tympani was negative, but the left mastoid process was somewhat tender to pressure. Functional testing showed hearing for unaccentuated whisper on the left, that is, the affected ear, at six meters, on right side seven meters. All tuning forks from $C_1$ (32 v. d.) to $c^3$ (4096) well heard and Weber not lateralized. In other words, there was apparently no involvement of the middle ear at this time. To relieve pains a carbolglycerine pack was inserted in the meatus together with 50 per cent. alcohol dressings externally; and the use internally of magnesium salicylate.

The patient came to the office only at irregular intervals, in the meanwhile reporting by 'phone and to the effect that the pains varied greatly—some days being very severe and on others almost absent.

On January 3, 1917, there was some desquamation of the left drum membrane, but no other changes except that the tuning forks were heard a little less loud in left ear than right ear. On January 14, 1917, the pains were very severe so that a wide paracentesis was performed, but without the finding or escape of any purulent secretion from the ear. At this time a few vesicles which had appeared in the external auditory meatus were opened. The Weber now was lateralized in the left ear.

On January 16, 1917, the patient was admitted to the Michael Reese Hospital and blood count showed 18,000 lucocytes. On January 18, there were 18,400, January 20, 14,200.

On admission, the temperature ranged from 97° to 101° and during next week it varied from 98° to 102°, some days not going higher than 99.6°.

On January 21, 1917, there was swelling of the bony meatus and the next day a swelling suddenly appeared over the left mastoid and the hearing dropped to one meter. Dr. Ira Frank saw the patient with me at that time.

A second paracentesis was done, but again without getting any pus. The leucocyte count on this day was 17,000. The next day (January 23), the swelling not having changed, the patient was operated on. On exposing the left mastoid a small fistula was seen near the posterior meatal wall. A large quantity of pus was found and much destruction in the mastoid process, together with a wide exposure of the dura and lateral sinus. Both of these tissues, however, appeared normal. A spinal puncture, made directly after the operation, showed a negative fluid. Unfortunately the pus from the mastoid was misplaced so no laboratory report was ever had. The leucocyte count began dropping within a few days and reached 10,200 on February 2, the differential showing 56 per cent. neutrophiles, 27 small mononuclears, 16 per cent. large mononuclears, 1 per cent. transitionals. The temperature gradually subsided and the patient made an uneventful recovery, leaving the hospital February 4. The wound closed in about seven weeks. On February 5 the hearing for whispered voice was 6 meters and on March 2 and again April 5 it was eight meters. At no time before or after the operation was there any discharge from the ear by way of the external meatus.

That this was a primary mastoiditis seems to me fairly well established by several findings and circumstances.

Despite the fact that when first seen he had for about three (3) weeks suffered, at times very excruciatingly, from pain in region of left mastoid there were no changes in the drum membrane and the hearing was good.

In the second place two wide paracenteses failed to demonstrate any pus in the middle ear.

Had there been any involvement of the tympanic cavity the hearing for whispered voice should have been reduced below 6 meters three or surely five weeks after the beginning of the disease (that is, January 6, 1917). Indeed it was not until January 22, the day that the swelling appeared over the left mastoid that the hearing was suddenly reduced to one meter distance. This was perhaps due to edema of the tympanic mucosa. Had there been even marked hyperemia in the middle ear any time before this, we would, it seems, have expected more change in the hearing power.

How the infection got into the mastoid process it is difficult to say; had it gone by the usual route, surely more tympanic symptoms ought to have appeared.

In conclusion let us say that the history of severe pain for quite a number of weeks with absence of objective signs on the membrana tympani, together with good hearing until a day or so before the operation; and the absence of pus in the middle ear as shown by two negative paracenteses—these facts seem to fairly justify

the diagnosis in this instance as that of one of those rare cases of primary mastoiditis.

29 East Madison Street.

DISCUSSION.

Dr. Wright C. Williams (of Chicago) thought that in all of the cases of primary mastoiditis of which he had read there is always a suggestion of trouble in the middle ear, toward the latter part of the process, at least.

Whenever an infection becomes disseminated we may have foci of infection in other parts of the body, and it would not be surprising that once in a while this infection would strike the mastoid. If you get osteomyelitis in the long bones, you get trouble in the gall bladder, trouble in the appendix or other parts, fully as often as you would get such a trouble in the mastoid process. He had never seen what he believed to be a case of primary mastoiditis.

Dr. Holinger did not believe that Dr. Sonnenschein's case is what we might call absolutely proven. The pain that the patient speaks of can just as well be referred to the middle ear as to the mastoid. On the other hand, there is the characteristic picture of osteomyelitis of the mastoid process which has been described over and over again, and an osteomyelitis of the mastoid process certainly might be primary, just as well as it can be primary in the tibia. If there are a few very large cells, or have been a few very large cells in the tip of the mastoid, it is quite possible that a certain amount of pus has been located there and kept up the trouble six or seven weeks, meanwhile causing the necrosis progressing over the greater part of the mastoid, with still not many symptoms from the outside.

Dr. Long (of Chicago) last winter reported a case to the Chicago Otological Society of primary mastoiditis which ended up with phlebitis of the sinus. Pain commenced in the ear five days after a severe coryza. The tympanic membrane was opened and no discharge whatever was found. Six days after that a mastoid operation was performed, and the whole mastoid cell was broken down, the sinus was exposed, and in opening the sinus, there was no clot found.

Dr. Pierce (of Chicago) thought the practical bearing of the whole matter is that we may have destructive inflammation in the mastoid without demonstrable change in the cavum. All infections traveling by way of the eustachian tube through the cavum would either be a surface invasion or an invasion by way of the lympathics. An infection of the mastoid by way of the surface or by way of the lymphatics that didn't affect the cavum is unthinkable. The only way that it would have a primary infection would be by hematogenous infection, just the same as we might have an osteomyelitis of the cavum, the germs gaining entrance from some foreign quarter.

The cases which are on record have hardly any of them been proven. There is always a hint of some inflammatory process having passed on in the cavum.

Dr. Sonnenschein (closing discussion): I think it is largely the same as the verdict of the Scotch jury, where they said, "Guilty, but not proven." I didn't wish to convey the idea that I was sure of this. In fact, as I stated, I would let you be the judges, and I am satisfied with the judges that I have had. As Dr. Williams and Dr. Holinger said, this case is not proven. The fact that the man never complained of pain in the ear itself would not be conclusive, but in this case all of the pains referred to, at least the first four or five weeks, was in and above and behind the mastoid process.

Dr. Holinger spoke about the fact of large cells being present in the tip as throwing light on the origin of the process. In this case there was a large turbinal cell, but the amount of destruction was so tremendous, the mastoid was almost hollowed out as it sometimes is in a cholesteatoma, with wide exposure of the dura and sinus.

Dr. Pierce has said, and I want to say there is no man in whose judgment I have more confidence, that this is largely an academic question, and that the practical point is simply to know what to do when the occasion arises, as he stated that a great amount of destruction may be present in the mastoid without much tangible evidence in the tympanum.

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## DEPRESSED NASAL DEFORMITIES CORRECTED BY BONE TRANSPLANTATION.*

L. OSTROM, M. D.,

ROCK ISLAND, ILL.

To my mind the best method of bone transplantation in nasal deformities is that so well worked out by Dr. W. W. Carter. With the aid of an assisting surgeon and a very simple set of instruments the work can be done in a very short time, and in perfect safety.

The nasal cavities are packed with cotton, saturated with paraffin vaseline, beyond the nasal bones. The face and anterior nares are painted with iodine. The incision is made inside the left nostril at a point between the upper and lower cartilage. Carter's subcutaneous knife works fine, but I have used the ordinary Freer's septum knife found in the hands of every rhinologist, and a straight strabismus scissors. For making the pocket toward the tip I sharpened the ordinary right angled dental burnisher. This works a remarkable easy way to the tip and is under perfect control.

The periosteum over the nasal bones is incised about ⅛-inch from the lower edge all the

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Fig. 1. X-Ray showing bone transplant and photograph showing profile one year after operation.

way from the right to the left side with the ordinary Freer angular knife and the ordinary elevator is then used to elevate the periosteum over each nasal bone first, leaving the fibrous tough attachment over the intranasal suture to the last. This tough fibrous tissue must be cut off close to the bone from each side very carefully so that the periosteum is not torn or split. For this purpose a slightly curved sharp elevator is best, as it follows the bone at all times and does not cut the periosteum above it.

By this time the assisting surgeon (Dr. E. M. Sala worked with me in the cases shown in the photos) has removed a portion of the ninth rib, about 2 inches of bone and one-half inch or more of attached cartilage and has split it. One of the halves is then shaped and properly adjusted into the cavity prepared for it.

By using the blade of a broad hollow retractor 3 inches long to raise up the skin and periosteum the bone transplant can be slipped in place under it and the tip of the nose stretched to admit the other cartilaginous end of the rib. If the transplant is of right size and shape there is no stretching of the skin or of the intranasal incision. Even pressure is then made on the nose to expel and control the blood.

By this time the assisting surgeon has sewed up the incision made in removing the rib. The chest should be immobilized with adhesive strips so that pain will not be severe during respiration.

The cotton is removed from the nose and a piece of gauze saturated with paraffin vaseline put in the nostril. This is removed in 12-24 hours; no other dressing is needed.

DISCUSSION.

Dr. Ostrom (passing illustrations): The results here, I believe, will show that beautiful results can be made, and I have done some where there was no depression at all; simply a little pug nose, where you slip in a piece simply for cosmetic reasons. Considering how safely it can be done, it should be done more often for the sake of beauty, if for no other reason.

Dr. Beck (of Chicago) deplored these operations for beauty's sake only. If you are going to attempt to correct this so-called mental deformity, for that is what they are (a little pug nose, a little twist, etc.), you are going to have endless trouble, as he has had in doing this a few times. People who have their noses

Fig. 2. X-Ray showing bone transplant and photograph showing profile one year after operation.

fixed up for beauty's sake are never satisfied, no matter how fine a result you get. It is always a little bit more or a little bit less than they want it. But in the case of collapsed noses, syphilitic noses, there is a difference. There is a real need for the cosmetic result there.

He finds the facia lata the best material for implantation anywhere. It becomes almost like bone and is plastic. It can be adapted in any shape or form. It is an easy proposition to get a piece of fascia.

Dr. Ostrom: All I want to say in conclusion is that I have not operated on any syphilitic noses. I have said nothing about the beauty stuff in the paper at all.

## THE RADICAL MASTOID OPERATION—ITS TERMINATIONS—WITH SPECIAL REFERENCE TO HEARING AND SUPPURATION.*

CHARLES H. LONG, M. D.,
CHICAGO.

In dealing with my subject, much that I must say will necessarily be a repetition of facts familiar to every otologist. My apology for this is my desire to present to you some phases of the operation which have appealed strongly to me, and deductions I have drawn from cases in my own personal experience. I shall touch but lightly upon the history of the radical mastoid operation; devoting my remarks chiefly to the emphasis of a few of the initial causes and certain points in the terminations, particularly the hearing and suppuration, with illustrative cases.

The evolution of the mastoid operation properly had its beginnings as early as 1649, when the necessity for the operation was first recognized. In this year we find that Riolanus first opened mastoid cells. The first real operation, however, was performed over two centuries later—in 1858. Van Trösch reports this case in 1861, and theories he expressed at this time furnished a foundation for materially advancing aural surgery. The subsequent investigations and observations by Jacoby of Breslau, 1868, St. John Roosa, Orna Greene, Schwartze in 1885, Küster in 1889, Stacke in 1891, with various recent modifications have brought the radical mastoid operation for chronic middle ear suppuration to what it is today. Thomas J. Harris states that the radical operation applied to the ear means, as elsewhere in the body, an operation for the radical or complete removal of all disease. As to what extent the operation accomplishes the purpose for which it was instituted, I shall speak later. In this connection, he also adds, "and is indicated when cure by other measures is found impossible."

I quite agree with the late Professor S. MacCuen Smith "that in consideration of the opportunities of causing irreparable damages, the radical mastoid operation should be considered a major operation"; and also in his further conclusions that it is safe in the hands of competent operators, and is justified by the maximum amount of good it produces. I am inclined to maintain, however, that in view of the danger points adjacent to the field of operation, the operation should be approached with hesitation by the average operator and performed only when the "indicatio vitalis" demands. The x-ray, and other facilities of the present day enable us to obtain a more perfect and accurate knowledge of the field than heretofore; which tends toward better results. However, much must be taken into consideration and the seriousness of the operation must not be underestimated.

It is my custom to divide my cases according to G. Alexander's classification, viz.: The acute up to six months; the sub-acute from six months to two years duration, and after two years, chronic. The radical operation is performed only in the chronic cases unless special conditions present themselves; such as tuberculosis, cholesteatomata, labyrinthine infections, etc.

The presence of cholesteatomata and the source of the suppuration influences the decision for operation after the failure of non-operative methods. One of the greatest factors to be taken into consideration is the matter of hearing. If the functional activity of the middle ear remains the same, the hearing is not usually altered, but there is danger of its being lowered. If the patient can hear, using the general test of the watch when it is not in contact with the ear, the advisability of the operation should be questioned; in any case, the patient should be told the exact conditions and make the decision for himself.

In reference to the Eustachian tube remaining open, most otologists agree that no matter what method or device is used for closing it, it often remains patent. However, with nose and throat normal, there is little danger of reinfection and if such should occur, it can be readily cured by a few treatments.

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We have many excellent papers on the radical mastoid operation, written by eminent otologists, but in nearly every instance an insufficiency of data made definite conclusions impossible and the success of the operation doubtful. In some cases we are left to wonder if the suppuration recurred. In others, we are told that it did so, but no reasons were given for its recurrence. Was the subsequent suppuration due to a defective operative technique, retention of exfoliated epithelium, dust, dirt, cerumen, moisture, or to infection through the Eustachian tube? And whatever the cause, did it respond favorably to after treatment?

What results are to be expected? to what extent are our expectations realized? to what are failures due? are matters in which there is much difference of opinion.

To my mind, a cure for chronic suppuration of the middle ear does not necessarily imply that there shall be no recurrence of discharge. Every case should be subsequently inspected, annually or semi-annually by the operating physician in preference, or by some specialist conversant with such ear work. Any recurrence of the suppuration can thus receive prompt and competent attention and all further trouble prevented.

When assured of the necessity for the operation the earlier it is performed the better are the results; especially is this true in point of hearing. Many failures are due to an insufficient knowledge of the anatomy or field; a disregard or ignorance of the variations of type of the individual human skull; or a failure to make the meatal opening large enough to secure proper drainage and allow proper cleansing.

It should be here mentioned that a very important factor toward success is, in securing a rounded cavity with smooth walls. Thus nature is relieved of the necessity of much work and a cure is hastened. The opportunities for the accumulation of pus are lessened and firmer cicatricial tissue is formed furnishing a greater resistance to mechanical agents.

Undue haste, and operating without warrantable indications, often occasion the operator much worry and can be blamed for the many accidents and unsuccessful results.

Lastly, I shall mention the neglect of subsequent inspection and care, which are as necessary to success as is the operation itself. I will present a brief history of each case reported in order to make a comparative study of the results attained.

*Case 1.* Mrs. W. M., aged 39 years. Otorrhea of right ear one year; facial paralysis three months; completely deaf; cholesteatomata; childless; no history of syphilis; no Wassermann made; radical mastoid operation, June, 1909. After treatment extending over four months, ear dry; paralysis and deafness uninfluenced.

April 10, 1917. Examination: No discharge during the eight years following the operation; partial facial paralysis; Eustachian tube open.

*Case 2.* J. K., male, aged six years. Otorrhea of right ear for 2½ years. Tubercular. Radical mastoid operation, 1903, by Dr. A. H. Andrews of Chicago. In 1905 the case came under my care with the history of frequent discharges from the ear. A partial ear drum, bluish in color, in the region of the hypotympanum, was opened, and a wine colored fluid escaped above and behind this granulation tissue and dried secretions were removed, uncovering ulcerated areas which were all treated with alcohol 50 to 75 per cent. In ten days the field of operation was perfectly dry.

April, 1917. During the last twelve years he has had three or four attacks of discharge which required only medical attention in the form of ordinary cleanliness to bring about relief.

Hearing at present:
Watch=½-inch.
Acoumeter=12 inches.
Forced whisper=13½ ft.
Conversational voice=12 ft.
Eustachian tube open.

*Case 3.* M. M., female, aged 11 years, 1906. Otorrhea of right ear for 1 year. Tubercular. Radical mastoid operation by Dr. A. H. Andrews. In 1909 the left ear commenced to discharge. Tubercular. Both bovine and human tubercle bacilli were found after four months of unsuccessful treatment with the following hearing: Watch=4 inches. The radical mastoid operation was performed March, 1910. Both ears have remained completely dry without an inspection until March of this year when she was suddenly seized with dizziness, sick stomach and vomiting, also discharge from left ear. After removal of crusts and debris and a few treatments with a solution of boric acid and alcohol, the symptoms subsided and the ear became dry.

Hearing, right ear:
Watch=contact.
Forced whisper=2 ft.
Conversational voice=11 ft.
Acoumeter=17 inches.
Eustachian tube open.

Left ear:
Watch=contact.
Forced whisper=15 ft.
Conversational voice=21 inches.
Acoumeter=18 inches.
Eustachian tube closed.

*Case 4.* M. B.; female; aged 21 years; 1911. Discharge from right ear since 1906, after scarlet fever; tubercule bacilli found in the discharges. Ozena since a child.

Hearing, right ear:
Watch=2 inches.
Conversational voice=2 ft.

Radical mastoid operation October, 1911.

April 4th, 1917, ear dry. At various times since the operation has had a discharge of pus from the ear, always caused from inattention on the part of the patient. A few treatments terminated the discharge.

Hearing:
Watch=2 inches.
Acoumeter=3 ft.
Conversational voice=4 ft.
Forced whisper=12 ft.
Eustachian tube closed.

*Case 5.* H. H.; male; aged 18 years; 1909. Discharge from the right ear since a child. Cholesteatomata.

Hearing:
Watch=contact.

The radical mastoid operation, 1909. The after-treatment was conducted by his family physician. Six months later the discharge continuing, I found upon examination a rather narrow meatus, a fetid discharge, a partial drum membrane and behind this membrane granulation tissue. After cleaning this out and using a daily application of 75 per cent. alcohol, I succeeded in getting a dry ear within a month. April 18, 1917, upon examination I found the ear still dry.

Hearing:
Watch=4 inches.
Acoumeter=24 ft.
Conversational voice=10 ft.
Forced whisper=24 ft.
Eustachian tube open.

*Case 6.* J. G. S.; male; aged 30 years April 1, 1912. Discharge from left ear two and one-half years. Klebs-Loeffler bacillus found in the discharges. No history of diphtheria.

Hearing:
Watch=not heard in contact.
Conversational voice=4 inches.

Autogenous vaccine used for three weeks and dose of antitoxin given; neither proved successful. The patient objecting to the radical mastoid operation because of the necessity of hospitalizing, I did an osculectomy. Six months later, October 28, 1912, there being no improvement, the radical mastoid operation was performed. March 9, 1913, ear dry.

Hearing:
Watch=contact.
Conversational voice=4 inches.
Forced whisper=10 ft.
Acoumeter=6 ft.
Eustachian tube closed.

Have been unable to get a later record.

*Case 7.* J. S.; male; aged 17 years. July, 1905. Left ear has discharged for last 14 years in spite of several periods of local treatment.

Hearing:
Watch=2 inches.
Forced whisper=20 ft.
Conversational voice=20 ft.

Operation on nose to relieve nasal obstruction, and thereby possibly stop the running ear, October 16, 1905. There being no improvement, the radical mastoid operation was performed. The ear did not become absolutely dry until April, 1907. April 9, 1917, no discharge from left ear for last ten years.

Hearing:
Watch=1 inch.
Acoumeter=2½ ft.
Conversational voice=7½ ft.
Forced whisper=17 ft.
Eustachian tube open.

*Case 8.* L. T.; female; aged 10 years; 1907. Left ear discharging since a baby. Tonsils and adenoids operated on by Dr. Marquis, of Chicago. In 1910 left ear still discharging. Chest examined by Dr. James Cole, of Chicago, who reported incipient tuberculosis. No tubercle bacilli found in ear discharges; mixed infection.

Hearing:
Watch=2 inches.
Conversational voice=12 ft.

December 29, 1910, radical mastoid operation. Slight facial paralysis followed, which disappeared in a couple of months. After a year of continued local and general treatment the ear became dry. Discharge has recurred only after prolonged periods of inattention to the hygiene of the ear. April 7, 1917, ear dry.

Hearing:
Watch=½ inch.
Acoumeter=9 inches.
Conversational voice=13 ft.
Forced whisper=17 ft.
Eustachian tube open.

*Case 9.* B. H.; female; aged 38 years; July, 1915. Both ears discharging intermittently for 36 years; cholesteatomata.

Hearing, right ear:
Watch=contact.
Conversational voice=2 inches.

Left ear:
Watch=contact.
Conversational voice=3 inches.

August, 1915, radical mastoid operation on left ear. December, 1915, radical mastoid operation on right ear. April, 1916, both ears dry. The region of the stapes of the right ear seeming free from cicatrices, I introduced an artificial drum in the form of a small pellet of absorbent cotton, moistened with liquid petroleum.

Hearing, right ear, without artificial drum:
Watch=contact.
Forced whisper and conversational voice=2 inches.
Acoumeter=contact.

With artificial drum:
Watch=not in contact.
Conversational voice=3 ft.
Forced whisper=7½ ft.
Acoumeter=9 inches.

Eustachian tube open.
Left ear:
Watch=contact.
Conversational voice=6 inches.
Forced whisper=10 inches.
Acoumeter=0.
Eustachian tube closed.
Uses electrophone to improve hearing.

*Case 10.* Mrs. B.; female; aged 46 years; May 5, 1910. Facial paralysis. Discharge from left ear for three years.

Hearing:
Watch=2½ inches.
June 7, 1910, radical mastoid operation. March, 1911, recovered from paralysis. April 13, 1917.
Hearing, left ear:
Watch=0.
Acoumeter=2 inches.
Conversational voice=13 ft.
Forced whisper=3½ ft.
Eustachian tube closed.
Removed crusts, not examined for four years.

*Case 11.* E. W. V.; female; aged 35 years; May 7, 1915. Discharge from left ear since 1912. Small fibrous goiter; nervous.

Hearing, left ear:
Watch=1 inch.
Conversational voice=15 inches.
Forced whisper=20 ft.
Tonsils and adenoids removed, 1913. Large polypus filling whole meatus. Removed polypus with alcohol. Eczema of ear, auditory meatus and back of ear. Treatment continued without improvement to December 15, 1915, when radical mastoid operation was performed. Because of infrequent treatments, patient absenting herself from the office and the eczema, it took a long time to get a dry ear. However, April 11, 1917, after using vaccines without results, I can report the following results: Ear dry.
Hearing, left ear:
Watch=2 inches.
Conversational voice=3 ft.
Forced whisper=12 ft.
Acoumeter=6½ ft.
Eustachian tube open.

*Case 12.* R. D.; female; aged 10 years; June, 1916. Otitis media both ears after scarlet fever six months ago.

Hearing, right ear:
Watch=contact.
Left ear:
Watch=4 inches.
Radical mastoid operation on both ears.
April 26, 1917, examination, both ears dry.
Hearing, right ear:
Watch=contact.
Conversational voice=2 inches.
Forced whisper=6 ft.
Acoumeter=2½ ft.
Eustachian tube closed.
Left ear:
Watch=contact.
Conversational voice=7 ft.
Forced whisper=16 ft.
Acoumeter=8 ft.
Eustachian tube open.

From observation of these cases, it will be seen that suppuration exists even more frequently where the Eustachian tube has been closed than when it is left open. Only when there is some infection of the nose or throat may the tube be held responsible for the suppuration.

In the majority of cases, discharges arise from infectious materials entering through the external auditory meatus causing erosion of the poorly nourished cicatricial tissue. The result of this erosion is the accumulation of dried secretions. An inspection at definite intervals of the field of operation would tend to prevent the occurrence of this condition.

Again it will be seen that in only two cases was the hearing lowered; while in eight ears the hearing was either improved or remained the same as before the operation. In case 9, the use of an artificial ear drum bettered the hearing from two inches to three feet for conversational voice. These operations were performed only when I felt that necessity demanded. The results have been gratifying, especially in regard to suppuration and hearing.

Thus my own experience leads me to feel that the radical mastoid operation is fully justified since we can report the suppuration cured in 100 per cent. and the hearing either unaffected or improved in 80 per cent. of the cases reported.

30 N. Michigan boulevard.

DISCUSSION.

Dr. Beck (of Chicago) cannot see when the time is coming that the otologist will recognize the value of pathological study in connection with this disease. It is true, there is some attention paid to a tuberculous condition in the case of a cholesteatoma. It is the underlying change in the bone that plays the part, in his opinion.

As Dr. Long said, frequent inspection is necessary in order to remove these masses and get this poorly nourished bone cavity in a clean and aseptic condition.

If you can remove the mucous membrane at the pharyngeal end and get a complete cicatrization here and combine it with the Yankauer method or any method you please, you will be able to obtain a complete blocking of the tube. This is dissected out by way of the pharynx, not at the time of the operation, but subsequently, and will close every time completely. Insurance companies accept cases as cured even if they have a discharging tube, but the patient does not look upon it in just that way.

Dr. Holinger (of Chicago): The hearing certainly

in most of the cases is improved. One of the reasons for destruction of hearing is the unnecessary probing, poking into the middle ear at the time of the operation, and especially the use of the protector. This instrument is entirely too clumsy and is bound to luxate either the ossicles or the stirrup. A great many cases of bad results as to hearing are certainly due to the use of this instrument. It has to be discouraged under all circumstances.

Dr. Pierce (of Chicago) emphasized the necessity of examining very carefully every case of radical mastoid as to the function of the cochlea and of the static apparatus.

At the Illinois Eye and Ear Infirmary we have found that when the low tone limit was raised above 127, where there was a marked positive Rinne, and where the Schwabach was markedly increased, in other words, where, according to the pathology the diagnosis of stapes ankylosis was established, there was no improvement after operation, and these cases tended to become more or less rapidly worse, as regards hearing. Where this triad is not present, then there may be improvement immediately after operation, and the tendency is for that improvement to persist for a long time afterwards.

It is also important to examine by rotation and caloric tests the position of the static apparatus. Very untoward accidents have occurred in my experience where we have operated on cases in which this examination was not completely done.

Dr. Long (closing the discussion): Referring to Dr. Beck's statement in reference to the pathology, I might say that there is some pathology that I didn't have the time to read, and that would account for his making the remarks about no pathology mentioned.

In regard to what Dr. Holinger said about the use of the protector, I never use a protector, and I endeavor to have as little traumatism as possible, smooth the walls as freely as can be and give the best possible drainage.

One of the doctors made a remark to me about the artificial ear-drum. The head of the stapes must be free and the small ball of absorbent cotton moistened in the oil. I prefer to use petroleum for this purpose. The cotton is placed in contact with the head of the stapes. The patient must place those artificial ear-drums themselves. They just get it at a certain point, and it is satisfactory to them to know that they can hear better. I don't understand the physics of it very well, but at any rate, the wave of sound must be caught up by this little artificial ear-drum.

As to Dr. Pierce's reference to the examination of these cases, I want to say that that was what induced me to write this paper. After looking over the literature, I learned that most of the gentlemen reported cases of the end results of the radical mastoid operation and failed to tell you anything about the hearing before the operation. Dr. Harris, of New York, wrote a paper about a year ago, but there was nothing definite stated about the hearing before the operation, while most of the cases that I have collected together have the examination of the hearing before and after the operation. I went back as far as I could, for I felt, as Dr. Pierce suggested, that the longer these cases go on, the more the hearing is liable to fail, so the early cases, 1903, 1904, 1905 and 1906, are the ones that I place more confidence in in regard to the condition of the hearing than those that were operated on one or two years ago.

## THE KRONLEIN OPERATION WITH REPORT OF CASE.*

EDWARD E. EDMONDSON, M. D.,
MT. VERNON, ILL.

This operation suggested by Wagner and put into actual execution by Kronlein independently of Wagner in 1886 is a distinct advance in the surgery of the orbit. By it one is enabled to explore the region of the retrobulbar portion of the orbit without interfering with the function of the visual organ and in many cases to remove tumors and penetrating bodies that are located in the orbit without the unsightly results of enucleation.

There are several well known modifications of the Kronlein operation. Czermak offered one with the object of exposing more of the orbital cavity, but as it is doubtful that it is of greater value to the oculist it is not used as frequently as the original operation; it contemplates removal of the lower edge of the outer wall of the orbit in addition to that recommended by Kronlein.

Perinaud and Roche offered an operation practically the same as Kronlein's except that the skin flap was made to curve backward; this was intended to prevent cicatrizing so near the canthus.

Rollet recommended a curved incision along the lower and outer edge of the orbit and resected the outer wall of the orbit from this horizontal incision.

Franke's modification consisted of the skin incision being made along the upper and outer wall of the orbit and resecting the flap downward and thus entering the orbit.

Cahen chiselled away the entire outer wall of the orbit for good in an effort to remove the supraorbital nerve.

Gussenbauer made a temporary resection of the framework of the nose and thus entered the orbit back of the globe, but these resections are

*Read at the sixty-seventh annual meeting of the Illinois State Medical Society at Bloomington, May 9, 1917.

so much more complicated than the original direct method devised by Kronlein that they are suited for very select cases only.

*Indications*—Domela has made a comprehensive collection of cases and the deduction drawn is that Kronlein's operation is indicated in (a) retrobulbar cysts dermoid, echinococcus or cysticercus; (b) tumors of the optic nerve and its sheath; (c) Orbital abscess; (d) retrobulbar cavernous angioma, lymphangioma, aneurisms, varicosities of the orbital veins, lypoma, osteoma, and other tumors of the retrobulbar space; (e) retrobulbar injuries and foreign bodies in the orbit; (f) operations for the removal of subretinal cysticercus in the macular region and it has been done for the purpose of opening the sheath of the optic nerve in choked disc, and in Mueller's operation for retinal detachment; (g) It is also justifiable for diagnosis in doubtful cases, being free from danger and often the only means of arriving at an accurate diagnosis in obscure retrobulbar process.

*Technic*—The patient is prepared by shaving the eyebrow and the hair from the temporal region, the patient is then given a general anesthetic and the head rests on the sound side. The skin incision is made in a curved line running from the linea semicircularic of the frontal bone at a point of intersection with a line drawn 1 cm. above the supra-orbital margin and passes forward and downward along the temporal edge of the orbit to the level of the upper edge of the zygoma when it is curved backward to end at the center of the zygoma. The incision in adults is 6 or 7 cm. in length, while in children it is proportionately shorter.

At the center of the incision a curved elevator is introduced beneath the periorbita and the outer wall of the orbit is freed from the soft tissue back to a point well behind the spheno-maxillary fissure and if necessary to the anterior end of the sphenoidal fissure. Care should be exercised not to injure the infra-orbital nerve.

The zygomatic process of the frontal bone is then cut through above the suture and the zygoma is then cut through at the lower margin of the orbit, either with a saw or sharp chisel, and the outer wall of the orbit is removed by straight incisions from these points to the anterior end of the spheno-maxillary fissure or possibly for 1 cm. back of its anterior end. The whole flap

Fig. 1. Before Operation

thus made is elevated and the orbit is exposed. The periorbita is then split from before backward to expose the external rectus muscle which in turn should be carefully drawn aside or sectioned near its tendinous extremity and the abducens drawn aside to afford a view of the contents of the orbit.

With the operation finished the eye muscles

Fig. 2. Three Weeks After Operation

that have been sectioned are again brought together with sutures and the bone and skin flap replaced and the periosteum sutured with silk and the edges of the skin incision closed with sutures or Michel clips. A drain should be placed in the upper part of the wound to prevent the formation of hematoma in the orbit. The eyelids should be sutured together to aid in preventing proptosis due to hemorrhage. An occlusive bandage should next be applied.

*Case Report.*— Girl, aged 13 years. Right eye was noticed to be fuller than the left since the child was two years of age. Vision at that time was not impaired; the proptosis was so gradual that the family and the family physician did not urge any measures for her relief. The eye gradually became more prominent till at the age of 13 the patient became so sensitive of her appearance that she insisted that the eye be operated on for cosmetic effect, and for this purpose she was brought to me. A test of her vision showed only perception of light. I made a grave prognosis in regard to vision and a guarded prognosis regarding motions of the eye for some months after operation on account of the elongation of the recti muscles.

The eye had protruded more than three-eighths of an inch and the lids were quite thin and closed only with effort. The iris and pupil could be seen through the closed lids.

I operated on the eye on December 30, 1916, by the Kronlein method and found a lypoma lying on the nasal side of the optic nerve and just behind the globe, which was easily removed and the eye dressed as above outlined.

The patient was able to elevate the lid almost to normal on the 15th day and on the 30th day was able to rotate the eye outward to a limited extent. The movements of the eye and the use of the lid are improving and the anterior position of the eye in the orbit is normal. The scar left is not noticeable to the casual observer and is mostly covered with her hair.

The photographs illustrate the appearance before and three weeks after operation.

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## OPERATION FOR ANTERIOR SYNECHIA WITH REPORT OF CASES OF SECONDARY GLAUCOMA AND STAPHYLOMA IN WHICH IT WAS USED.*

C. G. DARLING, M. D.,
CHICAGO.
Ophthalmic Surgeon, Cook County Hospital

The formation of anterior synechia after perforating ulcers or injuries of the cornea often leads to a secondary glaucoma with or without the formation of a staphyloma of the cornea.

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This is particularly true if the area of incarcerated iris is large or the pupillary area is the part adherent.

The operation for these conditions of which I wish to speak consists in doing Heines' cyclodialysis operation in the regular manner opposite the area of iris to be freed. This operation, as you remember, consists in making a small conjunctival flap about a centimeter from the limbus. An incision 5 or 6 mm. long is made through the sclera parallel to the limbus and about a centimeter from it; this incision can be made with a keratone, using sawing movements, care being taken just to work through the sclera and not to cut the choroid.

Now a spatula is introduced between the choroid and the sclera and worked forward into the anterior chamber.

The spatula which I use differs from the usual one, in having a small cutting edge just back of the end on each side. The spatula is passed forward, separating the iris from the cornea and the anterior synechia are cut free from the cornea by using the small cutting edge of the spatula, the posterior surface of the cornea being hugged by the spatula all the time. If the corneal scar is in the pupillary area an optical iridectomy can now be done by cutting down on the spatula well back in the limbus and enlarging the incision with scissors or canaliculus knife. Or one can wait and do the operation in the regular way at some later date after the formation of an anterior chamber. This makes it easy to do an iridectomy in complete obliteration of the anterior chamber with staphyloma of the cornea. When there is a large staphyloma[1] and only a very narrow rim of cornea the operation may have to be done from two or more different points to free the entire iris root.

I believe the operation described has some advantage over other operations when dealing with large anterior synechia; the principal advantage probably being that the iris is freed from the cornea *well back to its root* and the anterior chamber as a result being completely reformed. This will not be done by iridectomy in these cases as the iris root is adherent to the cornea, and also iridectomy when the anterior chamber is absent is very difficult to do.

I wish to very briefly report three cases in which this operation was used.

*Case 1.* Patient, male, aged 37 years, entered Dr. Clark's service at the County Hospital, complaining of

great pain in the left eye and side of head. The interne gave several injections of morphin, which did not control the pain.

Examination showed a large adherent leucoma of cornea involving the center one-half of the cornea. Tension 80 mm. No light perception. The operation was done by freeing the iris from the cornea as described, no iridectomy being done. Tension remained from 10 mm. to 15 mm. Eye kept quiet. No light perception.

*Case 2.* Patient, male, aged 45 years. Following large ulcer of cornea with perforation, patient developed a staphyloma of the cornea of the right eye. On the nasal side there was a small area of clear cornea about two and one-half mm. across. On account of staphyloma, tension not taken with tonometer. Vision, light perception. Operation done combined with iridectomy behind clear area of cornea. Result: Flattening of staphyloma; vision fingers 10 ft. Tension 15 mm.

*Case 3.* Patient entered my service at County with perforated ulcer near center of cornea. Tension 60 mm. after healing of ulcer. The patient was a Pole who spoke no English and was very hard to control through interpreter. After making the scleral cut and introducing spatula about 2 or 3 mm. patient suddenly raised his head and the spatula tore the choroid and vitreous prolapsed. I did not proceed to pass the spatula into anterior chamber, but replaced my cojunctiva flap. Eye did not become inflamed and has remained quiet. Tension remained down for two weeks, and then became slightly increased, this lowering being probably due to injury to ciliary body and the posterior sclerotomy. Vision, light perception as before. This attempt at operation was done over one month ago; if eye remains quiet will do an operation to free the iris under a general anesthetic.

1. C. G. Darling: A Method of Operation in Complete Obliteration of the Anterior Chamber with Report of a Case of Corneal Staphyloma. Ophthalmic Record, February, 1917.

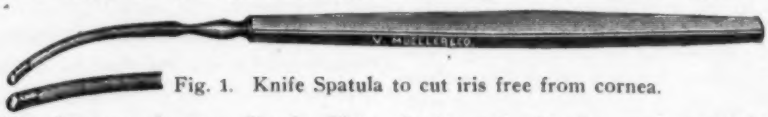


Fig. 1. Knife Spatula to cut iris free from cornea.

## ATROPHIC RHINITIS.*

W. G. Hatch, M. D.,
ROCKFORD, ILL.

In the whole list of nasal diseases there is not one that can be so truly designated as a real affliction as atrophic rhinitis. No class of cases that come to my office so appeal to my deepest sympathies as these same disgusting ozenas, and none had I found so resistant to treatment until I used trichloracetic acid.

My attention was first called to the therapeutic value of this acid while working in the Politzer clinic in 1901 and 1902, where under the tutelage of Drs. Frey and Alexander I succeeded in closing perforations in several ear drums. I did not use it again for other purposes until my attention was again called to its value in an article by Dr. Fitzgerald in the 1909 Year Book of Eye, Ear, Nose and Throat. He was very enthusiastic over its use in all purulent infections of the nose and throat, and classified it as one of the best of anodynes. He did not specify having used it in atrophic cases.

At the time I read this article I was treating several cases of atrophic rhinitis by the classical ichthyol and glycerine tampons after thorough cleansing, as recommended by the leading text-books, and with the usual unsatisfactory results. Dr. Fitzgerald's experience called to my mind the reparative properties of trichloracetic acid in ear drums, and I decided to experiment with it in ozena cases and determine whether it would regenerate nasal tissues as well as it did the membranes of the ear.

I have treated in the past two years fifteen cases. I am aware that this is not a sufficient number to determine a definite specific action, but the results have been so uniformly good and so far in advance of any method I had previously tried, that I decided to call your attention to it that you might prove its worth in your own practices.

My technique has been:

First. Use the Brawley suction to draw the secretions from the sinuses and cause hyperemia of the tissues.

Second. To thoroughly remove the crusts with 25 per cent hydrogen peroxide and an alkaline spray and douche.

Third. Apply 25 per cent trichloracetic acid well up into the ethmoid region and around the middle turbinates.

Fourth. The patient then assumes a reclining position with head hanging down over edge of table until nostrils point straight up toward ceiling. I then pour into each nostril about four drachms of 1 to 5 per cent solution of trichloracetic acid.

The 25 per cent application is used only in severe cases and usually but once. In after treatments the 10 per cent only is used. The office

*Read at the sixty-seventh annual meeting of the Illinois State Medical Society at Blomington, May 9, 1917.

treatments are given three times a week. For home treatment the patient is given a Douglas douche originated by Prof. Beman Douglas of the N. Y. Post Graduate School, with instructions to cleanse the nose thoroughly with warm salt solution three times a day. After each cleansing they are told to assume the above-mentioned reclining position and pour a test tube full of warm 1 per cent trichloracetic acid into each nostril.

I find this position very useful in treating other conditions involving the naso-pharynx, although milder solutions are advisable in hyperesthetic cases.

In many of these cases it is quite remarkable how rapidly the crusts and odor disappear. Some cases are more resistant than others, but all have experienced marked relief and like the treatment, which is not disagreeable or painful at the time or afterward.

In conclusion, the advantages of this treatment are:

First. Its simplicity, only a few minutes being required for each case.

Second. The rapid disappearance of crusts and odor.

Third. Its cleanliness, so different from ichthyol.

Fourth. The absence of pain or disagreeable symptoms, the patient admitting a sense of relief after treatment.

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## DIAGNOSIS OF ACUTE MASTOIDITIS AND INDICATIONS FOR OPERATION.*

A. EDW. SHERMAN, M. D.,

AURORA, ILL.

Mr. President and Members of the Society:

When I received a telegram from your president, requesting that I write a paper upon the topic of the diagnosis of acute mastoiditis and the indications for operation, I was so surprised that I accepted the invitation and overstepped my self-made rule that I would not present before any society a paper that did not show the results of original research.

What I have to say upon the above mentioned topic contains nothing original nor as far as I know, anything new. I have boldly consulted the works of Kerrison, Phillips and Kyle and borrowed information from my good friends, Drs. B. F. Andrews and Bookwater.

In making a diagnosis of mastoiditis we probably can first consider primary and secondary purulent mastoiditis. Primary mastoiditis is very rare and many cases which we probably diagnose as primary mastoiditis are acute exacerbations of an old inactive process. These cases are sometimes very difficult to diagnose, as the drum membrane may be absolutely normal and no history of discharge or any of the usual symptoms except pain are to be elicited. And we may only be able by the use of the x-ray, trans-illumination and the blood counts showing a process of infection somewhere in the system, to make the diagnosis.

Typical secondary mastoiditis is a much more frequent occurrence and is due to the spreading of a middle ear suppuration which had so far been confined to the tympanic cavity and antrum to the mastoid process. The involvement of the mastoid occurs either after the type of continuous extension (chiefly in the mastoid air cells), or after the type of metastatic suppuration, chiefly in the diploic mastoid. In the former case the mastoid abscess is in communication with the rest of the middle ear spaces from the beginning. In metastatic formation the abscess may at first be closed on all sides and a communication with the other middle ear spaces is only created by a perforation of the abscess in the antrum. Mastoiditis and middle ear suppuration occur at vastly different periods. After only a few days of middle ear suppuration the mastoid cells may be filled with pus and probably in a large number of cases pus enters the mastoid from the antrum in certain positions of the head or body or through physical causes without giving rise to any material co-inflammation of the mastoid. In many cases these changes will rapidly return to normal, so that at the end of the first week of the middle ear suppuration the mastoid region is again normal and free from pain. The typical purulent mastoiditis sets in during the third or fourth week of acute middle ear suppuration and after more or less prodromal signs at a time when the secretion from the external auditory duct usually still persists.

We may, if you please, divide the symptoms according to location. First, symptoms of the mastoid itself. Second, other ear symptoms. Third,

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cerebral symptoms. Fourth, general symptoms.

Phillips divides acute purulent mastoiditis into two types: First, a form which is almost painless, but characterized by a very profuse otorrhea. Second, a form evidencing intense deep-seated pain from the very beginning and having only a moderate amount of ear discharge.

Under mastoid symptoms we will mention (a) pain, which may be either not present at all, slight or very severe; maybe tenderness upon pressure over the mastoid cortex, the antrum, tip, zygoma, mastoid emissary vein; (b) swelling of the soft covers of the mastoid, which would be more apt to be the case in children. In advanced cases the skin over the mastoid may be tense, glistening and hyperemic. In some cases the auricle stands forward, even approaching a right angle to the side of the head. Again no pain, tenderness on pressure or swelling may be present.

Second. Ear symptoms. In the ear we may find either a moderate amount or a very profuse discharge. In some cases the discharge may be much lessened at the time the local mastoid signs are intensified and here we have the symptom of pus retained in the tympanic cavity, such as violent throbbing ear pains, similar to those occurring in the beginning of otitis media. In other cases profuse discharge which persists for weeks with obstinate earache point to involvement of the mastoid process. Swelling of the posterior superior canal wall and bulging of the upper segment of the drum head, which is not relieved by paracentesis, is considered by some a positive sign of involvement of the mastoid cells.

Third. Cerebral symptoms consist in diffuse headache which is usually localized towards the affected side, nervous excitement, and sometimes symptoms of involvement of the labyrinth with vomiting, vertigo, nystagmus, or convulsions in the initial stage.

Fourth. General symptoms. First may be mentioned fever, which if present must be considered and may in children reach 104. Frequency of pulse and respiration is increased in proportion to the fever. General depression of the patient, depending upon his subjective complaints. There may be considerable regional pain, general physical unrest, especially at night, anorexia, lassitude, bad complexion, patient gives the impression of being very ill. On the other hand, some may show no subjective or objective manifestations whatever, even in the presence of a large mastoid abscess.

The examination of the blood may show high leucocytosis and polynuclear percentage. The x-ray, when good radiograms can be obtained, gives a very good picture of the condition of the mastoid and both mastoids should be taken for comparison. Transillumination is also of value in determining the condition.

*Diagnosis*—Taking all of the above symptoms into consideration, there should be but little difficulty in arriving at a diagnosis in the average case of acute mastoiditis.

*Differential Diagnosis*—Probably it is well in making our diagnosis to take into consideration, first, otitis externa furunculosis; second, erysipelas of the auricular region; third, pediculosis capitis with lymphangitis of the scalp, as well as moist eczema and furunculosis of the scalp again, reflex pains from the tonsils and enlargements of the posterior auricular glands placed high up may simulate a mastoid involvement.

Having made our diagnosis, the question of treatment is the next important step to be considered and the topic for consideration now is when we shall operate. The operation is indicated whenever there is a purulent inflammatory condition which invades the mastoid antrum and cells, having all or part of the hereafter mentioned symptoms present. Tenderness on pressure over the mastoid; drooping of the posterosuperior canal wall and bulging of the drum membrane which does not diminish as a result of paracentesis, which symptom by some is in itself considered an indication for operation; fever, which, while not characteristic, must be considered in infants and young children; a prolonged, profuse discharge which persists after a free paracentesis due to a virulent type of pathogenic bacteria and in patients whose vitality has been weakened, which resists all approved measures of local treatment after six or eight weeks, is also considered in itself an indication for operation. For with no other symptoms the mastoid has been found the seat of extensive destruction. Sixth, subperiosteal postauricular swelling with or without superficial abscess.

By all means the operation is immediately demanded in an acute mastoiditis developing in the course of a chronic purulent discharge. Second,

upon the advent of symptoms of labyrinthitis such as destroyed audition, nausea, vertigo and nystagmus. Third, the appearance of facial paralysis. Fourth, symptoms of intracranial involvement.

Many of us who live in the smaller cities have been in the habit of trying to cure our cases by leaning more to the conservative and unoperative line of treatment, but when we see the extensive destruction that may in a very short time occur with but few severe symptoms, and when we can observe and profit by the observations made by Kyle in suspicious cases of mastoiditis with the use of the x-ray, I am fully convinced that we are in the wrong and that those of our colleagues in the large centers who are seeing many cases and to us may seem to be operating without sufficient cause, are in reality performing skilfully simple mastoid operations, getting brilliant results with practically no danger to the life of the patient, with an immediate relief of pain and suffering, and the cure of a destructive purulent discharge with which we are but playing and menacing the life and comfort of the patient. For how gratifying it is to the otologist to see his patient recover, in some selected cases in certain methods where the mastoid can be immediately closed up, the illness being but a matter of days. We find on examination normal and intact membrana tensa and perfect hearing, something which is not the rule after the cure of an old chronic discharging otitis media with adhesions, ankylosis and remnants of a thickened membrane which might have been avoided, had in time a well performed, simple mastoid operation been performed. Furthermore, the tendency to serious intracranial and labyrinthian complications with the possibilities of recurrence and loss of life are greatly lessened.

108 Main Street.

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## THE INTERPRETATION OF THE FINDINGS OF THE TRANSILLUMINATOR.

Wm. G. Reeder, M. D.

CHICAGO.

A perusal of the reports of different observers regarding the value of the transilluminator as a diagnostic agent in otorhinology reveals much variance of opinion. In the hands of some it is an indispensable asset; to others, it has proved of but little value. A study of its uses and limitations, therefore, may be indicated.

The translucency of the normal living tissue is truly remarkable; and conversely the disturbance of translucency in the presence of disease or death is equally striking. From the physical standpoint, translucency is a property dependent upon volume, density, and refractibility. Any or all of these factors may be altered sufficiently by cellular changes which accompany inflammation or death of a given tissue, to modify the normal translucency. Upon these physical phenomena is based the use of the transilluminator as a diagnostic agent.

If experience or comparative studies indicate the amount of light that should penetrate a given normal tissue, then any variation of light and shade as evidenced by the presence of an umbra or shadow, may indicate the presence of an atypical or pathological condition. As to atypical conditions, a pneumatic mastoid will illuminate more brilliantly than one that is diploetic in type. Fortunately, however, the mastoids of the same individual are bilaterally symmetrical and typical to a fair degree, so that comparison of the test with the fellow mastoid is of value in determining whether the picture portrayed is due to atypical or pathological conditions. It is quite generally conceded that transillumination is of little value in the diagnosis of frontal sinus disease because of the inconstancy, the variableness, and lack of bilateral symmetry of these sinuses. The maxillary sinuses are quite constant as to their size and shape, but with the transilluminator in the mouth position, one may be misled by atypical intranasal conditions such as a large turbinate body on one side, or a marked deflection or thickening of the septum. A previous article called attention to the cheek position of the transilluminator which obviates this possible source of error. (*Journal, A. M. A.*, April 29, 1916.)

The pathological changes involving the accessory sinuses or their walls which may disturb their translucency and consequently cast a shadow are many and varied. Common among them are: (a) hyperemia; (b) infiltration; (c) cellular degeneration; (d) pus; (e) hemorrhage; (f) hyperplasia; (g) hypertrophy; (h) atrophy; (i) neoplasms.

In the course of acute catarrhal rhinitis, a shadow is present, to a greater or less degree, over the accessory sinuses, in proportion as they

share in the congestion. It may require a low degree of illumination to detect it. The shadow becomes more pronounced as infiltration and cellular degeneration take place, reaches its height with pus formation or necrosis of bone, and recedes with resolution, persisting with the permanency of hyperplasia or hypertrophy of involved walls, and remaining permanent in the presence of organized new tissue.

In all cases of acute suppurative otitis media, the normal translucency of some portion of the mastoid is invariably disturbed. If hyperemia alone is present, the shadow is faint; but if infiltration takes place and gives way to pus formation and necrosis of bone, translucency becomes entirely abolished. In the presence of chronic suppurative otitis media, the mastoid is almost invariably quite opaque, because of the presence of eburnized bone.

It is evident, then, that the presence of a shadow over the mastoid or a sinus does not mean the presence of *pus*. It may mean that cellular degeneration has begun and a zone of infiltration has formed; it may mean the presence of free pus; it may mean the presence of dead bone; it may mean that the suppurative stage is past, and that complete resolution is not yet established; it may mean that organized new tissue is present; it may mean the presence of a new growth; and finally, it may mean, as before stated, an atypical anatomical condition.

It follows that the presence of the shadow over a sinus or the mastoid does not necessarily indicate that the case is surgical by any means. It *may* indicate surgery—yet any one of the above enumerated non-surgical conditions may be present. Most acute cases of mastoiditis or sinusitis which show a shadow go on to resolution without surgical intervention. Surgery based upon the findings of the transilluminator alone is exploratory surgery.

May disease be present and still no shadow be cast? It may be, but only in the event that too intense illumination has been used. The rule should be to use the least possible illumination, lest even disturbed translucency be overcome and pass unnoticed.

What, then, is the value of the transilluminator? Alone, it gives but presumptive evidence of disease. Used in conjunction with other signs and symptoms, it becomes one of the strongest links in the chain of clinical evidence.

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## HOW THE EYE AND EAR SERVICE IN GENERAL HOSPITALS CAN BE IMPROVED*

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Of all specialties ophthalmology and otology are the most highly specialized. In this paper I will refer to these two departments as one, for purposes of convenience. This was the first specialty to be established in the medical profession, and it has retained its isolation from that day to this. Even those "General Specialists," who attack everything from childbirth to corns, generally avoid eye and ear diseases, and especially eye and ear operations. They usually apologetically announce that they "don't pretend to do eye and ear work; and willingly refer the patient to a specialist. The avoidance of this department of our profession reaches to hospitals, hospital superintendents, internes and nurses. Surgeons, internists, obstetricians, pediatricians, orthopedists, etc., all meet with a hearty welcome, and co-operation in general hospitals, but the eye and ear surgeon usually finds himself more or less isolated, the service more or less reluctant and unskillful, and is obliged to do his work amid many difficulties and perplexities. His patients are scattered from one ward to another, and he is, therefore, dependent upon a variety of nurses, none of whom are really competent to administer to his necessities. Nurses or internes may be, and usually are competent to care for the average patient. They can give medicines, enemas, baths, etc., dress and care for injuries, and other surgical cases, etc., etc., but when it comes to putting drops or ointments in eyes, irrigating eyes or ears, dressing and bandaging eyes and ears, etc., they are, as a rule, not only incompetent, but actually dangerous, and many eyes have been lost from the awkward, ignorant and bungling care of incompetent internes and nurses. For this they are not to blame, they do not know how, because they have not been properly taught and trained. They are the innocent victims of bad conditions. It remains for us to correct these conditions. As patients are scattered from ward to ward, so the means of treatment and dressings are kept in various places and in diverse conditions. As the

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surgeon passes from one ward or room to another he meets various nurses of various qualifications who have charge of his various patients. They have none of them had *much* experience in this special work, but some are worse than others. Through their incompetency the surgeon is almost compelled to do the nurse's work himself, and he may as well recognize the fact, that if he wants the dressings done properly, he will have to do them himself. It is simply flying in the face of Providence, for instance, to allow the ordinary interne or nurse to dress a cataract case, after operation, when the slightest pressure on the eyeball, may mean the destruction of the eye. Besides this, how is the surgeon to know, beyond a reasonable doubt, that all the solutions, bandages, ointments, cotton, droppers, etc., are actually aseptic when he proceeds to dress his cataract, iridectomy, advancement, mastoid cases, etc. I knew two cataract cases to be lost in one week in one ward from impure dressings, for which the surgeon was in no way to blame. Surgeons should be assisted in their work by competent internes and nurses, and should be able to depend absolutely upon the purity of all dressing materials. This can scarcely be possible where patients and materials are scattered all over a hospital, with nobody particularly responsible for them. Under these conditions, solutions and ointments are hardly ever fresh, and bandages, droppers, probes, cotton, etc., are hardly ever sterile. Even if an eye and ear tray, properly stocked, is used, its contents are usually not reliable, as it is a general hospital tray, subject to many adventures, and under the care of nobody in particular, and not properly guarded when not in use. One annoying feature of the present system is the fact that the instrument, or drug, or appliance that is wanted at the present moment, is rarely on hand when it is wanted. The atropine solution is perhaps on another floor, the probe is in the operating room, the eserine ointment is in some other building, the ophthalmoscope is in the supply room, and when found, is out of order, or no proper illumination can be found, etc. It is hard and exasperating to work under such conditions, and the wonder is, that we consent to do it, when it really is not necessary.

The ever changing interne and nurse evil, is also a source of irritation, poor service, injustice to the patients, and exasperation to the doctors. They are both changed every few weeks in most hospitals, and they no sooner get to be of some little real utility, to the suffering surgeon and patient, when they are changed to another service or ward, and the work has to be begun all over again. Truly life is hard, and our dolls are—more or less—stuffed with sawdust.

Now, how about the operating room, and how can the many trials of this department be described in a few words? In the first place, there are but few general hospitals possessing adequate instrumental armamentarium for the eye and ear surgeon. He, therefore, usually has to take along his little bag, with his instruments, etc., and generally leaves in his office, the very thing that he most needs. These things have to be prepared for operation, after he arrives, which always consumes considerable unnecessary time. In the operating room, he is usually confronted with new nurses, just taking the operating room training, who know nothing, or little of his individual needs. The average operating room nurse has but little respect for ophthalmological instruments. She throws them around with the same ease and assurance that she employs in handling tools for ordinary surgical procedures. She has no regard for a cataract or iridectomy knife, and allows their points and edges to be dulled in an instrument tray, little realizing that a bad knife may mean an unsuccessful operation and blindness. Operating in an alien atmosphere is disastrous, to all parties concerned, and especially to the patient, who confides his sight, life or health to the safe keeping of his surgeon, and his hospital. The operator should be able to work in a calm, peaceful and undisturbed frame of mind, giving the best he has to his patients, who depend upon him for results. He should not be obliged to watch the nurses or internes to see if sterile solutions are being used, or if instruments are being rendered unfit for service, etc. His mind should be given undividedly to his work, and he should be able to realize that all details will be properly cared for without his personal supervision. The eye, ear, nose and throat surgeon should never be obliged to carry instruments to the hospital. They should be provided by the hospital, kept locked in a private cabinet, and be kept in perfect order by the special and permanent eye and ear nurse, and the chief operating room nurse. Much more might be said concern-

ing the unsatisfactory conditions prevailing in most general hospitals, so far at least as our special work is concerned, but enough has been said to call attention to the matter and you can all supply any missing evidence yourselves, for we are all fellow sufferers. What we are principally interested in is relief, and my object in writing this paper is to endeavor to point out some practical methods by which relief may be obtained.

In the first place, we must realize that this is a two-sided proposition. We must not seek to throw all the blame on the hospitals, we must acknowledge our own sins, before we mention the sins of others. It is best for us to connect ourselves with a good agreeable hospital and then stick to it. It is better not to change from one hospital to another, seeking to test them, or endeavoring to extend our acquaintance, and influence. This method *may* extend our acquaintance, but it will surely lessen our influence. Our work should be all or at least nearly all done in one hospital, as, by doing so much time is saved, and we become familiar with a certain hospital, and the hospital becomes familiar with us and gradually gets to understand our wants and necessities. After a while, by pursuing this policy, we become a feature of the hospital, and acquire some influence in its management. By thus concentrating, instead of scattering our patients, we become a financial asset to the hospital, and are in a position to successfully ask for better, and still better facilities for our work. Hospitals must have financial resources, like any other business, and unless it is abundantly endowed or supported by funds, must look to its medical friends for its support. Hospitals will, therefore, naturally favor doctors who constantly send them business, and are loyal to their organization, therefore, if you want sympathy, support and co-operation, give your undeviating loyalty to your hospital, and it will naturally do all it can to help you in your work. Very few ophthalmologists have a sufficient number of hospital cases, to make much impression on *several* hospitals, whereas most ophthalmologists in mature and active practice have enough patients to command attention, if they are all sent to one hospital.

We should connect ourselves with a hospital that is willing and glad to admit charity cases to its wards. This adds materially to our experience, enlarges our operative possibilities, and enables us to build up a clinic or operative day or days. Unless an eye and ear surgeon has a rather large number of charity patients his hospital and operative cases will be more or less limited in number. We all need experience, and plenty of it, to keep us up to the mark and unless we are connected with some eye and ear infirmary or dispensary, we cannot grow, as we otherwise would. Therefore, let us become connected with hospitals that really welcome charity patients, in order to enlarge our scope of usefulness.

Another point that I regard as very important, is to encourage other eye and ear surgeons to come on to the staff, and help to build up the eye and ear department. Some ophthalmologists are so narrow that they want to monopolize the entire department, or as much of it as they can. This is very poor policy, as the more eye and ear work done in your hospital, the greater will be your influence, in instigating reforms calculated to make your service and work easier and better. Therefore, encourage the entrance of good, agreeable and prosperous men in the staff, and you will find it will be beneficial to all parties concerned. I would advise you to build an operative day or days at your hospital, especially for charity or semi-charity patients. This should be done in connection with some medical school if possible, but in any event it should be done. Take any day in the week, in the morning or afternoon, as best suits your convenience, and set it aside for operations. Do your best to always fill these hours, and let it be known that operations can be seen at these times. Welcome doctors to your clinics, and make yourself as instructive and entertaining as possible. If your work grows, have two operative days or even more. After a while these days will become a feature of the hospital, and well known to the profession. Upon these days you can operate on your charity cases. Many people are poor, but still wish to pay *something* for an operation. You can tell such people that you will operate for a greatly reduced fee, if they will allow you to operate in the clinic, and most of them will gladly avail themselves of the opportunity. These are some of the things which *you* should do in your hospital, in order to perform *your* part of the partnership, and so that you may convince the hospital authorities that it will be a good move for them to make, to improve your service and facilities as much as they possibly can.

Now, what can they principally do to help you in your work, to add to the reputation of the hospital, and increase the chances of good results to patients? I think the most important thing they can do will be to give the eye, ear, nose and throat department a special nurse. Of course, what is really required is to have a graduate nurse given to you, who can stay with you permanently, and one who lives at the hospital and receives an adequate salary. In no other way can the best services be obtained. But if this is not possible at first, you should at least be given an undergraduate nurse who will be the exclusive nurse for your department for at least from three to six months. This will help considerably, and will almost surely lead eventually to a permanent graduate salaried nurse. A nurse of this kind will help you more than anything else in your hospital work. She will accompany you as you see your patients. She will carry with her a tray of drugs, solutions, instruments, etc., all fresh and aseptic, and such other things as are necessary in treatments, examinations, etc. You can leave all instructions with her, as to the care of your cases and she will take entire charge of your patients while you are away from the hospital. She will take charge of your instruments, keep them in order, and get ready for all your operations, and assist you in their performance. You will be dealing with one, intelligent, experienced, and responsible person, instead of with many, ignorant and irresponsible people. This *must* make your work easier, and your results better. As soon as possible you should be given an interne who will stay on your service for one year, for in no other way can you secure good and helpful interne work. Short interne service is unsatisfactory in any event, but it is especially unsatisfactory in eye and ear work. It is particularly unfair to the medical and surgical staff, for under this system they never secure really satisfactory interne service. Some means should be devised by which young doctors can secure not only experience in all hospital departments, but after this has been accomplished, can obtain a long service in the special department which they intend to cultivate as a specialty in their life work. In this way they not only would be fitting themselves for their ultimate occupation, but they would render better service to the patients, and last, but not least, to the doctor.

It should always be remembered that while it is the duty of hospital staff doctors to educate internes and nurses, it is also their duty to look after the best interests of their patients, and it should furthermore be their privilege to make their own work as comfortable as possible, and this can be best done by perfecting their hospital service in every conceivable detail.

It may be thought that it would be difficult to secure the services of an interne, who would serve in this department for an entire year, but this has not been our experience in St. Lukes Hospital in Chicago. We have always had a "waiting list," for it must be remembered that while many young doctors desire to become eye and ear specialists, the number of eye and ear hospital internships is distinctly limited, and not easy to secure. As soon as our programme was formed at St. Lukes, and it became known that we were prepared to retain an interne for one entire year, and that the position was desirable and possessed reasonably good possibilities, we had no difficulty in securing efficient and earnest internes. We take pains to teach our internes, to place responsibilities upon their shoulders, and to assist them in making all kinds of operations. This produces a good service, and one that is desired. The eye and ear interne and nurse always should have an assistant interne and nurse, working under them, that stay on the service at least three months, and longer, if possible.

After a special interne and nurse have been secured, the next step should be to obtain a special ward with an up-to-date examination, treatment and dressing room, fitted up as efficiently as a down town office, so that all kinds of work, including refraction, perimetry, etc., can be thoroughly performed. At St. Lukes, for instance, we have our own ward of 20 beds, with their backs all to the windows, which is a most desirable feature in an eye ward, as it is important, especially after eye operations, that patients' eyes should not be unduly exposed to the light. This ward is quiet, and has a private hallway, washing and lavatory room, dining room and kitchen, and a beautiful examination room 20 feet long, by 10 feet wide. This room contains everything necessary for our work, and is a great inspiration to the attending staff, the nurses and the internes. The latter appreciate it particularly, for here is a place where lenses can be fitted, field of vision taken, nose operations performed, cases treated

and examined, etc. Besides our regular permanent nurse, there are two-day nurses, and one-night nurse, always on duty in this ward, under the direction of our interne and permanent nurse. Of course, we have the hospital laboratory and x-ray department always at our command. We still need a small female ward at St. Lukes, a few private rooms for our own use, and one or two special operating rooms, and these will come when our new building is erected on Indiana avenue. It has taken us years to build up this service at St. Lukes, but now we have something that is tangible, and enables us to do the best work with the least friction. It has, however, only been accomplished by persistent effort toward a definite goal, by demonstrating that it was a desirable and necessary reform, and through the unfailing assistance, and support of our efficient superintendent, who has always been our friend and willing co-worker. What we have done, others can do!

## THE TREATMENT OF VITREOUS OPACITIES *

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*The Vitreous Body.* The greater part of the interior of the eyeball is occupied by the vitreous body, which is situated between the lens and ciliary body anteriorly and the internal limiting membrane of the retina posteriorly. It is composed of a jelly-like substance, perfectly transparent, called the vitreous humor, invested with a delicate capsule known as the hyaloid membrane. The vitreous humor consists mostly of water with a few corpuscular elements and a small percentage of carbonate and chloride of sodium, giving it an alkaline reaction. It has a depression anteriorly, on which the lens rests, known as the fossa lenticularis, and a lymph space extending from the optic disk to the capsule of the lens. This is the canalis hyaloideus, its enlargement in front of the disk is the "area Martegiani" and behind the lens constitutes the "post-lenticular space." It is a lymph space and communicates with the anterior chamber and with the intervaginal spaces of the optic nerve. In fetal life it is occupied by the hyaloid artery, which sometimes persists in the adult.

*Causes of Opacities in the Vitreous Body.* Among the commoner causes of opacities in the vitreous may be mentioned the following: Choroiditis, iridochoroiditis, cyclitis, iridocyclitis, intraocular hemorrhages, injuries, myopia, retinitis, uveitis, anemia, loss of sleep, gout, syphilis, menstrual disorders, constipation, portal congestion, malaria, long-continued use of arsenic, senility, elderly persons with atheromatous arteries, hemorrhages after severe strains, excessive use of stimulants, leukemia, emphysema, dysentery, cholera (all varieties), metastatic choroiditis following puerperal fever, exanthematous diseases, influenza, microbic invasion from old operative wounds, tuberculosis, nasal accessory sinus disease, animal parasites, idiopathic inflammation, detachment of the vitreous, fatty degeneration of the vitreous and cholesterin crystals in the vitreous. Cataracts and glaucoma are frequently complicated by opacities in the vitreous.

The diagnosis of opacities in the vitreous is a very important matter, as the vision may be entirely lost in patients who neglect to seek relief. These cases should be referred to the specialist promptly, as it is only possible to detect this condition and many of the underlying diseases of the ocular structures which causes it by the most careful and pains-taking ophthalmological examination. The opacities are of two varieties, fixed and floating, and present every conceivable size and shape, and when viewed by the ophthalmoscope appear as dark objects against the fundus, resembling soft coal soot or black moss. These masses when fixed in the line of vision constitute a serious obstacle to vision, while if situated to one side may not disturb the patient very much. I have found, however, that when the opacities are floating about with every movement of the eye the patients are greatly alarmed in some cases and in others much annoyed.

Various devices are resorted to in order to see them, such as the plane or concave mirror, strong or weak lenses, according to the depth of the opacity, and strong or weak light in certain cases will render them visible, also varying the distance from the observer to the patient will bring all the different parts of the vitreous into view, if the vitreous is otherwise transparent. There are sometimes a few leucocytes in the vitreous which cause entopic phenomena, but are not discoverable with the ophthalmoscope. Foreign

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bodies in the eye, which it may or may not be possible to locate with the x-ray, I shall not stop to consider, as it would take more time to consider that one phase of the subject than is available for this paper. Sometimes the vitreous is so full of fine opacities that it is impossible to see the fundus. The view may be further interfered with by pathological conditions anterior to the vitreous in the lens, aqueous or cornea, or posteriorly by pus, tumors or exudates.

*Treatment.* All patients presenting themselves with opacities of the vitreous should be thoroughly refracted, preferably under atropine, unless there is some special contra-indication, to discover if there is any error, if so, its nature and extent. Frequently there will be found serious defects which have existed for a long time and were unsuspected by them. The most serious form of ametropia in relation to hyalitis is myopia of high degree, and myopic astigmatism, causing posterior staphyloma and myopic choroiditis, and fluidity of the vitreous. These patients should be accurately fitted for near and distant vision, and cautioned to avoid over-use of the eyes, as they are in imminent danger of detachment of the retina. These cases of synchysis greatly complicate the extraction of cataract. All these cases should not only have their errors of refraction corrected for near and far as indicated, but should have ultra violet ray protection for the retina if exposed very much to the bright sunlight or tungsten or nitrogen electric lights.

Hemorrhages into the vitreous result from traumatism, or bleeding from the ciliary body, retina or choroid as the result of diseased conditions, the blood penetrating the hyaloid membrance and mixing with the vitreous humor to a greater or less extent, depending on the amount of hemorrhage and the consistency of the vitreous. These extravasations of blood frequently occur at the time of puberty, adolescence, menopause and during senility with atheromatous conditions of the arteries. I have seen them occur in all these instances, as well as in nephritis, diabetes, syphilis, and anemia, the latter frequently also meaning a condition of lessened coagulability, the same we often encounter in anemic conditions, accompanying diseased tonsils and adenoids, where upon their removal hemorrhage continues for a long time without the slightest tendency to clot, instead of the normal period of three to five minutes.

The patient should be placed in bed, when practical, and given morphin to reduce the blood pressure (avoiding adrenalin); salines, in laxative doses given for a long time so as to avoid any necessity for straining; the eyes, protected from light and any unnecessary use; the blood should be thoroughly examined and Blaud's carbonate of iron pills when indicated, and active antiluetic treatment instituted when justified by the clinical or laboratory findings. Iodid of potassium meets the double indication of increased pressure and absorption of the clots. In glaucomatous conditions eserine is advisable, as operation usually spells loss of the eye from further extensive hemorrhage. In recurrent hemorrhages, chlorides of calcium should be given for a prolonged period, as lime is absolutely essential to bring about coagulation of the blood. In robust subjects the application of leeches to the temple, or to the emissary veins of Santorini over the mastoid to drain the ophthalmic veins through the lateral petrosal and cavernous sinuses is sometimes invaluable. Three forms of animal parasites have been found in the vitreous, the cysticercus cellulosæ, filaria sanguinis hominis and hydatid cyst. It is important to differentiate them from persistent hyaloid artery, hyaloid canal and detachment of the retina. Having arrived at a diagnosis there is but one thing to do, and that is to remove them, first having obtained the consent of the patient to removal of the eye if the effort fails. The best prophylactic measure is to avoid eating raw meat or permitting dogs to lick the hands or face.

Crystals of cholesterin, tyrosin and phosphates occur in the vitreous humor and are known as synchysis scintillans and appear as innumerable bright specs upon ophthalmoscopic examination. They no doubt are the products of faulty pancreatic and hepatic metabolism. I have not observed that they interfere with vision, and there is no known remedy for them.

Perforating injuries of the vitreous with the introduction of infection resulting in suppuration usually calls for enucleation to forestall sympathetic ophthalmitis. Retained foreign bodies almost invariably result in atrophy of the globe or suppuration, hence should be subjected to attempted removal at least as a precautionary measure.

Nasal accessory sinus disease, infections of the

tonsils and adenoids and pyorrhea and abscessed roots of teeth and, in fact, any focal infections may secondarly cause disease of the nerves, lymphatics and blood vessels of the eyes and result in vitreous opacities. Accordingly they should all be subjected to a thorough examination and proper surgical measures resorted to in order to relieve the condition.

The inflammations of the ciliary body, retina and choroid accompanied by exudates and vitreous opacities should be treated by the instillation of atropine, dionin, iodid of potassium, laxatives, sweats with pilocarpine and Turkish baths, protection from too bright illumination from the sun or artificial lights, subconjunctival injections of cyanide of mercury or normal salt solution, diuretics (of which acetate of potash is one of the best), iron, quinine and strychnine to improve the blood and general nutrition. Many patients will require a prolonged course of treatment, extending over several months or years, before the opacities in the vitreous are entirely removed, as I have demonstrated in some very grateful cases in whose eyes there were many floating and fixed bodies, and that are now perfectly transparent and free from them.

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(ABSTRACT)

Dr. Harry Woodruff (of Joliet) thought that the most interesting point to the oculist is a moderate amount of vitreous opacity, where the vision is not very seriously disturbed, in people beyond middle life in which probably the same pathology holds as holds for beginning cataracts.

He does not believe that subconjunctival injections of salt solution have much influence on those conditions, but those people should be thoroughly examined as to their general physical condition, also their teeth and tonsils should be thoroughly investigated and receive attention.

He has prescribed a 2 per cent. solution of iodine and sodium used with an eye-cup, the same treatment which is recommended by Dore for beginning cataracts.

Dr. Tydings (of Chicago) believed the main idea is that vitreous opacities are the local expression of systemic disorders, which must be eliminated. The eye-washes are only of elementary aid. The systemic conditions are the ones to be met. As a local remedy he uses the cyanide of potassium, one to three thousandths, using it hypodermatically, as advocated by Smith in the treatment of beginning lens changes.

Dr. Peck (closing): The remarks of the gentlemen are absolutely correct. The main thing that has impressed itself on me in recent years is the fact that a great many of these cases can be cleared up by persistent treatment. I have several cases now that have cleared up, but it has taken a long time. I don't believe it is possible to clear some of those cases in short order. The important point that I wanted to impress is that in order to clear up some of these cases, where they have large masses, it requires perhaps two or three years to do it. It is impossible to remove them in a few weeks.

## THE IMPORTANCE OF AFTER-TREATMENT OF THE TONSILLAR FOSSA DURING THE SECONDARY PERIOD FOLLOWING TONSILLECTOMY*

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My investigation of the literature upon the after-treatment of tonsillectomy has failed to reveal anything of importance upon the treatment of what I term the second period of the post-operative course, especially emphasizing it as a routine measure. If this be an erroneous statement I humbly offer an apology to the wronged author. There is an abundance of advice to guide us as regards the first or primary period, which extends from the time the operation is completed until about the tenth day thereafter, and few authorities upon the subject give us but little upon this part of the treatment beyond the fifth or sixth day.

This first period is what might properly be called the hemorrhage, gargle, spray, etc., period, the chief objects of which are to cope with hemorrhage, relieve pain and guard against septic infection. I do not wish to be understood as considering this first period of after-treatment unimportant; but, conversely, I consider it of the most vital primary importance, for upon its skillful application depends the lives of our patients.

My personal care and observation of more than five hundred tonsillectomies, which I have performed at St. Anthony's Hospital, and the examination of the throats of other patients that have come under my care, who had had their tonsils removed by some of the best laryngologists in this country, has convinced me of the necessity of establishing and carrying out fully a course of secondary post-operative treatment of the fossæ. This I have been doing with good ultimate results for the past two years.

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This secondary period of post-operative treatment, according to the plan I have adopted, begins at the end of the first or primary period, or ten days after the operation, and continues from two to six months, depending upon the conditions of the fossæ that may arise; and there are some rare cases which should be inspected a year or more after operation.

Now it is not my object or desire to raise any undue excitement or discussion in this section, or to wound the pride of any of my friends in this field of specialization, by stating that I care not what method or technic is employed in the removal of the tonsil (we all agree that it should be removed within its capsule and that the pillars should be uninjured), or by whom the operation is performed, that in a large per cent of these patients, if their fossæ are examined within a few months or a year after operation (unless the plan of secondary treatment and observation of the tonsillar fossæ, which I will later outline, is applied as a routine measure in every case), there will be found in the tonsillar fossæ abnormal growths, consisting either of nodular masses of granulations or tonsillar tissue, and in some cases both.

The most frequent location of tonsillar tissue is at the base of the fossæ, which in some cases is transplanted there from the lymphoid tissue in the root of the tongue (unless it has been left by the operator), also in the superior portion up and under the plica. Nodular masses of granulations are most frequently to be found upon the pillars and in the depth of the fossæ. I am pleased to be able to state that I am not alone in this opinion, as regards the fact of the return of tonsillar tissue in the fossæ being possible, and not only possible, but very probable, and occurring, unfortunately, with too great a frequency for the good of our reputations as laryngologists; and the sooner this error is removed from our minds, and the laity is told the whole truth about this matter, that is, there is a possibility of the return of this tissue if the throat is not properly treated after operation—the better our position is going to be before the public, and it will also put an end to our uncharitable conduct towards our brethren in this line of operative work, by ceasing to tell the patient of the other fellow, who comes to us, that all tonsillar tissue was not removed. This is unfair, as we know by absolute clinical evidence that in some cases, where the capsule is removed in toto, by a smooth, clean dissection (by whatever method suits the operater), we may have return of lymphoid and granular tissue. Of course I am ready to admit that the better the technic and more care employed to remove all the capsule, and leave a clean, smooth fossa with pillars unimpaired, the less the liability of secondary growths; but, as there is a liability of such a condition taking place, even when the utmost care is exercised by the operator, we should take no chances in this matter, but should keep all cases under our personal observation until we are reasonably sure that the result is a clean fossa.

The contention which I make as regards the after conditions or results which may sometimes be found in the tonsillar fossæ following tonsillectomy is fully substantiated by the report of the study of the after results following 571 cases of tonsillectomies, reported by Dr. John C. Simpson, of Norristown, Pa., in the *Journal A. M. A.*, April 1, 1916. These cases were not operated on by Dr. Simpson, but by Drs. Gibbs and Stauffer. The post-operative range covered a period of ten years; the average time since operation was three years.

Now bear in mind that these cases, according to Dr. Simpson's report, were all tonsillectomies, and not tonsillotomies—and his statement with reference to the fossæ is: "Presence of tonsillar tissue after operation—a slight amount was noted in 183 cases, while in 72 cases enough was present to be considered as hypertrophy. The remaining 316, or 55.25 per cent, gave no evidence of tonsil present." Are not the facts brought to our attention by the above sufficient to cause operators upon the tonsil to sit up and take notice, as, according to the report only 55.25 per cent. of the operations were a complete success, and 44.75 per cent fell far short of our ideal standard of efficient results—a clean fossa?

Dr. Chas. J. Whalen of Chicago, in a paper entitled "The Tonsil—Its Medico Legal Aspect," ILLINOIS MEDICAL JOURNAL, September, 1916, gives his opinion upon the probability of lymphoid tissue returning in part, as follows:

As a result of experience along lines indicated, I have arrived at the following conclusion: First, that no matter how skilful the operator, it is impossible, by any method known at the present time, to remove every particle of lymphoid tissue in either the pharynx or fauces. Second, that the remaining particle of glandular tissue, be it even microscopically small, is

capable under certain conditions of assuming a degree of hypertrophy equal to the original growth. Third, that under favorable conditions, in a certain percentage of operative cases, a secondary hypertrophy of the lymphoid tissue in the pharynx will occur, no matter by whom the operation is done, or how thoroughly he may think he has removed all glandular tissue.

It seems difficult to understand why so important a phase of tonsil surgery has been so long practically neglected; and more especially is this true when we consider that the major number of tonsillectomies are at the present time performed for the primary object of removing dangerous foci of infection, which may be responsible for diseased conditions in organs remote from the tonsils, by metastatic infection; and it is self-evident that a tonsillar fossa which does not remain clear of tissue capable of incubating infection cannot possibly give the best results.

Dr. F. Buckmaster, of Effingham, Ill., in a paper entitled "The Tonsil in Its Relation to a Series of Infection Sequences," ILLINOIS MEDICAL JOURNAL, September, 1916, states that he views this subject from the viewpoint of the general diagnostician and general surgeon, and refers operative tonsil work. In his paper he places special importance upon having a clean fossæ, as the following will indicate: "These cases must be followed up, remaining pieces of tonsil removed, granulating surfaces cauterized, epitheliazation stimulated, etc., until the fossæ are completely healed in and the surface rendered non-absorptive."

The treatment for the secondary post-operative course which I have adopted and have been using during the past two years as a routine treatment consists in first impressing upon my patients, when they leave the hospital, the importance of carrying out a regular routine course of after-treatment—explaining to them that while growths do not in every case return, that there are some cases in which they do, and if they wish to be assured of good results they must report at my office from time to time for examination and treatment if necessary. I find by this method I can keep my patients under observation for as long a period after operation as I deem necessary.

If I find upon examination of the fossæ, at the end of the second week following the operation, nodules of lymphoid tissue, or masses of granulations, I destroy them by touching with a small thermo-cautery point; I have three points with different angles, in order to better reach all parts of the fossa. If there is any great amount of surface to be touched I treat only a part, waiting until the next treatment to treat the remaining parts. If we include too much area the reaction may cause too much discomfort.

I am very careful that no injury is done to the normal parts. In treating some patients I find it necessary to use someone as an assistant to depress the tongue. I have patients to report at my office about every week, and, if I find it necessary, I continue the cauterization until all abnormal growths are destroyed. In the majority of cases requiring cautery treatment one treatment is sufficient, but there are some cases which require three or four treatments, covering a period of six weeks or more, and in very rare instances I find growths springing up four to six months or more after operation.

These cauterizations should not be given much closer together than one week, as the reactions should be allowed to subside before a second application of cautery, for, if the interval between treatments is too short, the treatment will be more painful and less effective, as the operator is unable to know what results he has obtained from the preceding treatment, i. e., how much tissue was destroyed, until all reaction is over and atrophy of tissue complete.

To render the cauterization practically painless, I use a ten per cent. solution of cocain on a cotton swab, taking care to squeeze out all superfluous solution, and apply it to the point or points to be cauterized. Two applications are made five minutes apart, waiting from three to five minutes after last application before beginning. After the period of cauterization is completed, and the fossæ are absolutely clean, I insist upon the patient reporting to me about once every month up to the end of the sixth month after operation. I realize it is difficult to get them all to do this, but quite a number will. Of course I realize that cauterization of the tonsillar fossæ is practically impossible in children under ten years of age, but in this class of cases, nodules, etc., are removed by the punch, or, if the nodules are small, by touching them with a fused point of silver nitrate, repeated if necessary until they are completely destroyed.

I believe that the general adoption of this method of treating our tonsillectomies would re-

duce imperfect results to a very small percentage of our patients, as the reasons for the large percentage of imperfect after results, at the present status of tonsillar surgery, can be traced to two causes—first, to poor technic, and second, those in which the technic has been good, but the after care of fossæ has been neglected.

My technic of operation I believe is at least up to the average standard usually maintained, but nevertheless I find it necessary to treat by cauterization about fifty per cent. of my patients.

I desire in closing to say that I consider the growing tendency, which confronts us today, is that this operation is too often regarded as being in the class of minor operations—about on the same plane as an operation for a furuncle. This opinion we find not only in the minds of the laity, but among the general practitioners (and I regret that I am compelled to say among many good men doing this line of surgery). We should, perhaps, be charitable toward the "all-around specialist," but it is difficult indeed to understand why men who should know better will handle a tonsillectomy with so much indifference as regards the after care.

The operation is being performed in the office, in the home of the patient, or in any other place that suits the peculiar whims of the patient. This, to be sure, saves hospital bills and enables the operator to thereby better compete in the matter of cost with the operator who is doing his surgery of this character under the proper conditions and safeguards, viz., in a well equipped hospital.

Every tonsillectomy should be approached with the same degree of care, and treated with the same dignity as any other major operation, which it truly is; and when this view and plan of the operation is generally adopted, and all operations are performed in hospitals, with proper equipment and trained assistants to aid the operator in making use of his best skill, following the plan of after treatment which I have endeavored to make plain, there will be a great many more good, clean fossæ.

DISCUSSION.

Dr. Bergeron (of Chicago) thought the way that most of us have done this tonsillectomy until very recently has been deplorable. Now, for the most part, the fundamental principles are being observed, that is to say, the resistance of the patients is being considered, the bleeding is minimized.

He then exhibited his recently devised forceps for the purpose of controlling the hemorrhage, primary and secondary as well, which eliminates the necessity of going into the cavity with sponges or ligating the bleeding.

In every case those forceps, properly applied, will eliminate bleeding absolutely.

Dr. Holinger finds that the application of a little iodine of potassium solution, the usual Mandel solution, about the sixth or seventh to the tenth day after the tonsillectomy is liable to clean out the cavity much quicker and leaves a nicer result.

He has used the forceps of Dr. Bergeron any number of times with very satisfactory results.

Dr. Tydings (of Chicago) has used Dr. Bergeron's instrument, but had one accident, a perforation of the anterior pillar.

He has not found it necessary to follow up the course of treatment as long as Dr. Burkhardt has, but has examined later many of the tonsillectomies and the results have invariably been satisfactory.

Dr. Cavanaugh (of Chicago) has seen men using Dr. Bergeron's instrument who don't know how to use them. There is absolutely no danger of perforating any pillars if you use the instrument correctly. They are supposed to be applied deep and grasp the muscles deep, not the edge of the pillars.

He asked Dr. Burkhardt how old these patients were at the time the tonsils were removed, in cases where glandular enlargements returned.

Dr. Tydings: I applied the forceps just as you suggested. I went down as deep as I could, but I got a perforation of that pillar.

Dr. Burkhardt (closing): I am somewhat disappointed that another matter has been injected into the discussion, that is, the instruments, although they are very good. What I mean is that it may have detracted from the point I wished to bring out, the part secondary treatment.

I wish to say, in answer to Dr. Cavanaugh's question in regard to my method of removing the tonsils, my method is a method that I saw him use years ago, and I have never seen any reason to change. I learned to take a tonsil out within its capsule, and do a good, smooth, clean job, and the longer I do it, the better I think I can do it. I believe all of you have had that experience.

To begin with, I use an ordinary Kyle's crypt knife, and with that, in conjunction with the curved knife, I believe it is Dr. Tydings' knife, I get my tonsils well dissected loose from the pillars, doing no damage to them. When I feel that the snare will go freely down over what we might call the equator of the tonsil, I remove it with Tydings' snare. I think I can show as clean work as most any of you. I don't want to boast, but I think I do it pretty smooth. But, even the smoothest cases that I have had, those cases that I just prided myself on as being some of the best, where the capsule was absolutely all removed, have been the cases, (some of them) that afterwards I found that I had a little bit of nodule springing up in the fossa.

While Dr. Tydings may think that all cases are absolutely clean—I am not going to say they are not, but I believe all of you will find some things that will surprise you if you look into some of those fossæ six months or a year after your operation.

Of course, I had quite a number of children, and, while I didn't classify them, I would say, however, that the vast majority were adult cases.

Dr. Tydings: I would suggest to the doctor, in removing the tonsil, when you go down to the end of the tonsil and make your lower incision, do it so as to include the whole of the tonsil. In a few cases I have seen hypertrophy of that sub-tonsillar tissue.

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## SOME OBSERVATIONS ON THE DECOMPRESSION OPERATION ON THE HYPOPHYSIS BY THE NASAL ROUTE.*

Otto J. Stein, M. D.,
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In working in any comparatively new field of surgical endeavor various problems arise that, with further experience, become simpler in their performance and less complicating in their results.

The operation for the decompression of the pituitary body may be carried out by several different routes, the trans-temporal, the trans-frontal and the trans-sphenoidal being the usual ones followed. The first two are not considered in this paper. The trans-sphenoidal route has been used in several different ways, namely, through the mouth, through the antrum of Highmore, and through the nose. The nasal route as originally carried out was a most serious and radical performance. The earliest operators, like Schoffler, Eiselberg, Proust and Ollier, commenced with an external excision about the nose, either turning it to one side or upward or downward. This was followed by the removal of most of the structures within the nose, including the turbinates, septum and ethmoid cells. Later, particularly following the work of Oscar Hirsch, this sacrifice of important structures was found to be not only unnecessary, but also harmful. The technique as now employed through the nose gives ample room for working with the minimum of tissue loss and to the rhinologist, in particular, the operation offers an exceptionally favorable avenue by which to approach the floor of the sella turcica. If he is skilled in the performance of submucous septal resection, he can with facility and rapidity open widely into the sphenoidal cavity, which then gives him easy access to the sella floor and the gland that lies within. With this perfected knowledge of the anatomy of this region and of the variations and anomalies that may be expected, the rhinologist is particularly fitted for this operation.

The general surgeon, when following the naso-sphenoidal route, usually commences his incision external to the nose. Kanavel incises the upper lip around the alae. Cushing incises beneath the lip at the labiogingival junction. In following the antrospenoidal route the incision is made at the labiogingival junction. Both Citelli and West commence their resection of the septum further back and do not attempt a submucous procedure.

The criticism to these various methods is the greater likelihood of infection following operation, besides the necessity of removal of considerable tissue, much of which is functionally important, and the removal of which later produces distressing symptoms. In many of the operations as carried out by the general surgeon systemic anesthesia is used, which adds seriously to the case and is unnecessary. I believe the ideal anesthesia to be morphin-hyoscin or scopolamin-morphin, with flake cocaine locally on the septum and sphenoid. I would offer a suggestion and sound a note of warning regarding the preparation for anesthesia. A careful and reliable examination of the urine for evidences of oxybutyric and diacetic acids and acetone should be made in all cases to avoid the possibility of acidosis developing after operation. A reasonable food consumption should precede the operation, for dieting or fasting may develop this condition. Also hurried operations should be deprecated. The only case I lost from operation of this kind was of this nature. In brief, it was as follows:

A man forty-seven years of age, having only central vision, blindness commencing two years before, both fundi showing beginning peripheral atrophy; headaches; no perverted pituitary symptoms. Owing to certain circumstances no routine physical examination including urinalysis was made in the hospital. He was operated on by request without any previous observation aside from a preliminary nasal inspection. Scopolaminmorphine and cocaine anesthesia. The patient dozed throughout the operation. On entering right sphenoid encountered a cyst which did not rup-

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ture until I entered the left sphenoid. Two drams or more of straw colored fluid, slightly blood stained, escaped. All of the floor of sella was absorbed from pressure by the cyst. The operation was the simplest, quickest and easiest of my operations. No tissue was removed. The patient had a restless night, vomited constantly, severe headache, temperature at first 97.8, pulse 80, later temperature rose to 102.8. A condition of acidosis was diagnosed from the symptoms of vomiting, pulse, headache, urine examination and breath. *Exitus lethalis* occurred on the second day following operation.

Ordinarily a diagnosis of these cases is established by a trio of symptoms, namely, headache, involvement of vision, and perverted physiologic pituitary function, plus the Roentgenographic findings. The Roentgenogram, if correctly taken and understandingly read, is valuable both to the operator and the diagnostician, but especially to the operator, because it furnishes him with evidence of capacity and dimensions. A good picture will show the size of the sphenoidal cavities, a widening and deepening of the sellar floor, even a shadow outline of the glandular mass if it has already invaded the sinus, a thickening or a thinning of the bones at the base of the skull; enlargement or absorption of the clinoid processes and an increase or decrease of the diaphragm opening. This knowledge is of supreme importance to the surgeon, because of the variations met with in the size, shape and position of the sphenoidal sinus, as well as in the thickness of its walls and the relationship of adjacent parts, like the posterior ethmoid cells, the optic nerves and the carotid arteries.

In any series of normal head sections some divergence will be found in the anatomy of this keystone bone. Ordinarily the floor of the sella presents at about the superior posterior angle of the inner wall of the sphenoid cavity. A distinct promontory can be seen in the center, indicating the most dependent part of the pituitary fossæ. The bone at this point is usually quite thin and easily broken through. Many of the descriptions of this operation do not describe this part of the operation with sufficient clearness or detail. The promontory indicating the floor of the sella may be absent, and in place of a convexity, either a straight or even a concave wall may present itself. Now, if you were to follow the directions given by some authors to enter through the roof or by that of others to perforate the posterior wall, you would, in some instance, enter the anterior cerebral fossæ or the middle fossæ, jeopardizing the chiasm and the cavernous sinus. Occasionally one finds a hard and thick wall in the region of the promontory. This makes progress slow, and besides, adds uncertainty to the work. In one case of cadaver operation, I found a large posterior ethmoid cell interposed between the sphenoid cavity and the sella, which, of course, had to be broken through first before one could enter the fossæ. Onodi, in his work on sinuses, has shown several variations of this kind. But whatever anatomic condition may be present it is always necessary for the operator to keep working in the median line to escape injury to nerve, artery and cavernous sinus. This in itself is a strong argument in favor of the septal route. You are always working in the median line from the beginning, and that spells safety first. One of the advantages of working submucously is that the entire operation is confined between two mucoperiosteal flaps, and with proper aseptic technique these flaps can be brought together at the final, thereby avoiding any danger of after infection. A case bearing out one of the variations met with was where headache was the chief symptom, and in which no eye symptoms were present. The Roentgenogram showed a depressed sella with a lengthened antroposterior diameter. The optic chiasm most likely escaped pressure from the growth on account of its posterior position. Right here a fallacy in many books on anatomy can be exposed: That is the optic groove, which lies anterior to the pituitary fossæ, is said to lodge the chiasm which then passes from either end as the optic nerve into the optic foramen. This would give the nerve almost a right angle course. But in reality the chiasm lies further posterior, presenting its anterior border at the posterior part of the gland, and the two optic nerves lying to the side. Most of the tumor cases involve the anterior lobe first, and in their growth seem to meet resistance least at the floor of the fossæ. The diaphragm above appears to offer greater resistance to the tumor growth than the bony floor, the bony clinoid processes before and behind and the firm dural reflections with the cavernous sinuses on the sides. One other weak point besides the floor of the fossæ is the infundibular which connects the pars intermedia with the third ventricle. Along this path cysts are likely to develop. A case of this type was reported by

me over two years ago. The patient made a complete recovery of all focal symptoms like headache, blindness and vertigo, after a trans-sphenoidal decompression, and in which the gland was adenomatous and filled the sphenoid cavity. After a year headache and vertigo began to return and four months later she died. Autopsy showed the gland greatly enlarged, filling the sphenoid sinus as well as forcing the diaphragm up in front of the chiasm. Connected with the infundibular was a cyst the size of a walnut that invaded the dilated third ventricle. This shows the two types of pathology in one case. The adenoma appeared first, later the cyst. Had the cyst been recognized latterly it might have been drained, but as Cushing said in a letter to me about some of his cases, "Cysts, even if exposed and evacuated, tend to refill with return of the pre-existing visual defects." But these variations should never deter the surgeon from following this route of operative procedure, because with the knowledge of these variations and a good radia picture he can always proceed with confidence.

DISCUSSION (ABSTRACT)

DR. HOLINGER would like to hear more about the question of infections which is treated very cursorily in all the treatises.

About two years ago, one of the gentlemen read a paper in Chicago and reported a very limited number of deaths. At the same time he knew of two deaths that had happened to him which he had not reported at all. Of course, needless to say, this is not in regard to Dr. Stein. This man had previously injected the patient with streptococci serum, and the patient died from pneumococcus meningitis.

DR. BECK (of Chicago) has accepted the teaching that the nasal route is the best means of operating on these cases, in that it is easier, quicker and there is less danger from infection. It is a cleaner cavity. No matter how well you resect the septum, the place through which you work is the size of your nasal opening, whereas through the cavity in the anterior wall of the superior maxilla, you can make it as large as you please. The distance is markedly reduced, and you see so much better in this shorter distance and have a larger exposure.

Another thing, to remove that portion of the septum that is against the sphenoid, to throw the two sphenoid cavities into one, is some job. His three cases on the living were all done through the nasal route. All were pure cases of hypophysis tumor and cyst; all were clear eye cases with blindness and headaches, and all are living and have recovered a sufficient amount of vision to warrant the operation. None of them have recovered completely.

Again, the nasal route will not suffice for quite a number of cases that are not of that portion of the hypophysis that can be reached through the sphenoid. There are intracranial hypophyseal tumors, that is, the tumor grows into the brain proper, and, of course, we will have obstructions. It stands to reason that to attack such a case by any other route except by the Cushing transtemporal route would be suicide.

DR. EDWARD F. DIXON finds two objections to any intranasal operation that has been given. One is the matter of infections, and the other is, as Dr. Beck said, some of the tumors grow up toward the brain. Now, to obviate the matter of infection, the submucous operation comes the nearest to doing this of any of them. Cushing's operation adopts that plan as well as Hirsch's, but Cushing instead of doing the ordinary submucous makes his entrance through the lip and the mouth, as Dr. Beck does. Both of those are exposed to whatever infection there might be in the mouth.

He described his own modification of Cushing's operation as going in over the lip instead of going under, resecting the septum submucously, not as Kanavel biting it out. So, in that way, you are working entirely in an aseptic field.

DR. STEIN (closing discussion): In spite of the remarks made by those who have discussed this paper, for which I thank them very much, I still maintain that the septal route intranasally is the route preferable for reaching this region for a decompression operation, regardless of whether there is a tumor, a so-called neighborhood tumor, that may frequently exist, and you can't always tell beforehand whether it is present or not. The decompression is there just the same. These cases are all serious cases. They are probably going to die anyhow, and you get relief, you get benefit and you get a percentage of cures. I claim that the nasal route is as aseptic a route as you can possibly get. I think it is far more aseptic than the mouth route, which we always consider a septic avenue to enter the head. You can get a clean field, and you can close that field by bringing your flaps together without any fear afterwards of infection following. Of course, it is not impossible that there will be infection, but with the ordinary care that one would take in such work, I don't think it is likely to occur.

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## MANAGEMENT OF MALIGNANT DISEASES OF THE UPPER RESPIRATORY TRACT.*

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Ordinarily speaking, this would refer to the two conditions, namely, sarcoma and carcinoma, but in a stricter sense of the word it refers to any pathological condition that progresses towards

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a fatal termination in spite of treatment, usually spreading rapidly. Such other conditions as endothelioma endovascularis, angioma progrediens fulminantes, chloroma, cholesteatomata, malignant syphilis, scleroma, actinomycosis and tuberculosis must be considered as malignant diseases.

It is impossible, even in the briefest manner, to describe each of these conditions in the time allotted to this presentation, nor was it my purpose to do so were the time unlimited. I wish to give a resumé of my own experience with sarcoma and carcinoma about the head and neck, with particular reference to the final or end results. That word final, in this last sentence, could easily be replaced by fatal, because it is well known to all of you that in so far as the carcinomas of the nose, mouth and throat are concerned, they invariably terminate fatally, no matter what form of treatment is employed. In spite of these discouraging facts the medical profession is putting forth its untiring efforts to change those conditions. Therefore, speaking specifically to the subject of management, we should consider certain factors, which, however, are subject to differences of opinion, as the basis of a possible discussion.

*First.* All who are interested in the subject of cancer should become members and co-workers in the society organized for that purpose, namely, The American Society for the Control of Cancer. All matters pertaining particularly to the education of the public in the possibility of prevention of this malady as well as the early recognition both by the laity and the general practitioner are its most important duties. The censoring of case reports, as well as the control of the scientific journals of laboratory work of cancer is no small part of its duty. Finally the treatment of cancer.

*Second.* The earliest possible diagnosis is to be followed immediately by the most radical intervention. This does not always mean surgery.

*Third.* All points of irritation, such as fissures, chronic inflammation, stones, non-malignant growths, foreign bodies and jagged edges are to be looked upon as precancerous states, and should be corrected.

*Fourth.* When a malignant growth has assumed the proportions of a metastatic growth or involved the neighboring tissues to such extent as to make life unbearable, were the cancer removed, then in such a case palliative treatment is indicated and the limit of that wonderful remedy, morphine, should be given so as not to have the patient suffer any pain.

*Fifth.* However, should the growth be ever so large and so completely involve the neighboring structure as to probably leave a large defect in appearance as well as function, and furthermore, should the procedure appear to be so formidable as to offer only a small chance of a permanent cure from the cancer, it is our duty, I believe, to give such patients that chance and operate. I claim that one case in one hundred that will recover following such heroic measures is one hundred per cent of cures, because without that procedure the patient would succumb to the disease.

*Sixth.* In the removal of particles of tissue for microscopical examination, it must be borne in mind that cutting into a malignant growth will frequently aggravate the process or endanger the healthy neighboring regions from implantation of cancer cells. Consequently Dr. Bloodgood has recently recommended the use of an electrically heated knife which will prevent that difficulty and yet not spoil the tissue for correct microscopical diagnosis.

*Seventh.* The follow-up system of cancer cases is of the utmost importance and the cooperation of the medical profession in making this of practical value is absolutely essential. The word cure of a case of cancer in a report should be well fortified by all the scientific proofs of a diagnosis as well as the time limit. It must be remembered that there are early and late recurrences. The accepted time limit of malignant disease of the upper respiratory tract, including the mouth, is five years.

*Statistics.* The number of cases observed and treated by me, and of which I have complete reports, including the follow-up system in the majority, since 1895, are 143.

I have, without a doubt, seen again as many cases in clinical, dispensary and charity hospitals, as well as in consultation, of which I have no records, consequently of no value statistically. Suffice it to say that some of the sarcomas lived, while almost all carcinomas died.

I will divide them primarily into:

(a) Sarcoma.

(b) Carcinoma, without any reference to the type as to the cellular pathological entities.

SARCOMA.

*External Nose.* Two cases, both terminated fatally, although one case lived five years, during which period four operations were performed.

*Intranasal,* including the sinuses, eleven cases; all operated upon; eight followed up to a very recent rate; five of these eight cases have now some sarcomatous tissue present, three are cured.

*Nasopharyngeal.* Nineteen cases, all operated upon. Seven followed up to a very recent date. Four died between the third day following the operation and the second year after. Eight cases not possible to locate.

*Tonsillo-pharyngeal.* Three cases, all died; one operated on and died six weeks after. The other two grew so rapidly that death ensued within a month.

*Alveolar-palatal.* Two cases. Both alive and apparently cured. One operated on four times, the other treated by massive radium.

*Mandibular.* Two cases, both died in spite of radical operation, although surviving these for several months.

*Lingual.* One case, alive, apparently cured by operation.

*Laryngeal.* One case, still alive and under treatment by massive doses of radium having been operated on four times previously.

SUMMARY—

Total number of sarcomas, forty-one.

Total number accounted for at recent date, thirty.

Total number of deaths, eleven.

CARCINOMA

*External Nose.* Epithelioma. Twelve cases, ten operated upon, two treated. All followed up to recent date. All lived without recurrence. Five died (from intercurrent diseases several years after treatment; no post mortem having been obtained in any of them).

*Intranasal,* including the accessory sinuses. Seven cases, three operated upon, five followed up to recent date. All dead.

*Alveolo-palato-pharyngeal.* Thirty-nine cases; eighteen operated upon. Twenty-four followed up to recent date. Two alive, one eight years and the other three years since operation. The remaining twenty-two cases are dead.

*Lingual.* Seven cases; four operated upon, six followed up to recent date. One still alive, now three and one-half years since operation. The remaining five cases are dead.

*Laryngeal.* Thirty-seven cases, thirty-four operated upon, twenty-six followed up to recent date. Of these five are still alive and apparently without any recurrence. The procedures were three laryngectomies, eight years, five years and three months since operation; one laryngeal fissure, five years since operation, one by indirect laryngoscopy, now eleven and one-half years since operation. The remaining twenty-one cases are all dead.

SUMMARY—

Total number of carcinoma cases, one hundred and two.

Total number followed up to recent date, seventy-three.

Total number still alive, twenty-one.

Total number dead, fifty-two.

In conclusion I wish to report four cases of malignancy of the larynx. I would further say that in so far as the management of the malignant conditions outside of the sarcoma and carcinoma that are mentioned above there appears to be nothing gained by surgery. Deep x-ray, massive doses of radium, high voltage of diathermia, Finsen rays, sun rays and salvarsan all have some influence.

FOUR CASE REPORTS

*Case 1.* Mr. R., 54 years old, married, three children, many years waiter and in saloon business. Has always been well except for hoarseness until eight months before presenting himself, when he noted considerably more hoarseness from which he never recovered in spite of treatment by specialists. He had received thorough antiluetic treatment on general principles or as a therapeutic test without any results. This hoarseness soon developed into a marked type with some embarrassment in respiration. He had lost some in weight, but had no pain upon swallowing.

Examination: Somewhat emaciated looking man, but bodily examination shows him to have fair musculature and plenty of fat. The physical examination was negative. Blood examination showed a two plus Wassermann, but the Abderhalden was negative, as to carcinoma. Sputum negative as to tuberculosis.

*Nose.* Indicative of a sinus trouble or atrophic rhinitis.

*Larynx.* Considerable difficulty in inspiration, making quite a marked noise and very hoarse voice. Inspection revealed a thickening on both cords, particu-

larly the left. It appeared as though there might be considerable thickening subglotically. The diagnosis pointed to a luetic condition with a possibility of a rhinoscleroma. I determined to do a suspension laryngoscopy in order to examine below the cords and also take out a bite of tissue for microscopical examination. While doing this suspension or following the action of the cocaine locally, the patient became suddenly very short of breath and cyanotic, so that I was compelled to do a hurried tracheotomy. That was all the treatment for about two weeks. He had now recovered, in fact gained some in weight. It was now possible to make the suspension laryngoscopy and removal of tissue. There was considerable thickening below the cords and the removal of a bit of this tissue showed it subsequently under the microscope to be a squamous celled carcinoma. One week later a laryngotomy was performed and the growth removed from within the larynx in the following manner:

Under ether anesthesia through the tracheal canula, an incision was made with the ordinary instrument down to the thyroid cartilage.

The parts were widely retracted. By means of the Percy cautery the thyroid cartilage was scored in the median line. An incision was made through the cartilage with Jackson's scissors. The thyroid cartilage, now split, was widely retracted. By means of Percy's small knife the entire intralaryngeal mass was cooked without any cooling externally or within the esophagus. This was accomplished by periodically laying the heated point against the tissue and waiting until one heard a sort of a hissing sound, but never permitting the tissues to become charred or burned. This procedure required about thirty minutes. It was found that some of this thickened tissue appeared to go down into the cricoid region, so concluded to communicate the tracheal opening with the laryngotomy, also by the aid of the Percy knife. The interior of the cricoid and treacheal region was similarly treated by the Percy heated point, as above. An up-and-down Jackson tube was put in and the laryngotomy dressed wide open to promote the throwing off of the slough.

The patient had not much of a reaction; in less than two weeks was fairly clean. At the end of one month the tube was left out and the wound allowed to close. For about three weeks the patient breathed well and had a very fair voice, then he began to show evidences of breathing with some difficulty. At the end of two weeks he had to be reopened, which was very easy, and a tracheotomy tube inserted. It was decided to wait any recurrence before attempting further treatment to establish normal breathing through the larynx. After about six weeks' observation, showing no evidence of recurrence of carcinoma, I decided to employ an intubation tube, which has given me excellent service in treatment of laryngeal strictures from other causes. A piece of tissue removed for microscopic examination proved again to be negative. This tube was allowed to remain for about two weeks, when he showed some evidences of pain in swallowing. On removing this tube, I found that it had produced a decubital ulcer on the lower posterior wall of the trachea. The result from this intubation was very satisfactory, but the laryngotomy wound was kept open nevertheless in order to observe any recurrences. It soon began to contract down so that we were compelled to dilate from below by means of sounds.

Conclusions in this case October, 1916, were:

(1) That he is possibly cured from carcinoma of the larynx.

(2) That Percy treatment without cooling apparatus produces greater cicatrization than when it is employed as will be shown in a subsequent case.

(3) That there may be an element of lues in the case, that is to say, both diseases may be present.

(4) That tubes should not be left in situ without examining for possible decubitus ulcerations from pressure. The result from this mode of dilatation is, however, not promising in this case, because after a few moments the larynx opening closes down and the tracheotomy tube must be again inserted. It is my opinion that he will have to wear an up and down tube or an intubation tube for a much longer period, and if after that it will not remain open then he will have to wear a permanent tracheotomy tube. In that case he would be given one that he could close by the aid of the shuttle operated from his pocket.

*Subsequent course.* About one week after the above date (Nov. 16) the patient showed evidences of great difficulty in swallowing and marked symptoms of septicemia. On exploration I found the posterior laryngotracheal surface in a state of coagulation necrosis. A day or two later the patient showed evidences of a fistula between the esophagus and the trachea in the midst of this necrotic tissue, so that he was put on rectal feeding. It was soon found that he could not subsist long on this method of feeding, so I advised a gastrotomy, which was performed under local anesthesia by Dr. Carl Beck. The patient stood this ordeal very well, but could not retain much of the food poured into his stomach; he would vomit or return it through the created gastric fistula. About one week later, while his neck wound was being dressed, there came away a large slough, which left a perfectly smooth cavity or outline of the thyroid cartilages with the opening of the esophagus, but no evidence of any carcinoma. Tissues taken at different times from the neck region for microscopic examination showed at no time evidences of carcinoma. It now became possible to insert a stomach tube into this esophageal opening and so feed the patient, allowing the gastric fistula to close. The patient, however, was so markedly weak-

ened that it did no good and he succumbed to the general asthenia.

This case demonstrates that the coagulation method destroyed all the carcinoma, but at the sacrifice of life. It reminds me of a story which is so apropos that I hope to be pardoned when I insert it in this paper.

"A man who had a cancer of the face was asked by a Patent Medicine company for a testimonial because it was known that he was cured by their product. He acquiesced and said: 'After taking ten bottles of your medicine I wish to say that I am glad to state that the cancer of my face is gone—but I am sorry to say also that my face is gone, too.'" The loss of this man's larynx may be due to the fact that the principles of Percy's coagulation method were not carried out in the strictest sense, because I had to develop my own technic. I have reference to the cooling of the neighboring tissues, which, it will be seen, was employed in the subsequent cases with not such disastrous results.

*Case 2.* Mr. Hgl., 55 years of age; married; two healthy children; brewer by trade; uses his voice often in speech making, and in summer a great rooter at the baseball games. Lives in Montana in the copper smelters region.

For past six months noted a hoarseness which gradually increased to a marked degree. Consulted his specialist, who told him he had a growth in the larynx and removed a piece for microscopical examination. This proved positive for carcinoma. With this history he was referred to me. I found a growth as large as a hazel nut, irregular in outline, nearer the left posterior commissure than anteriorly. The physical and laboratory examination, other than the microscopic specimen of the piece removed, were negative. Operation decided upon. Under local anesthesia (morphin ¼ gr. and novocain and cocaine) a laryngotomy was performed, the same way as in Case 1, except no preliminary tracheotomy was done, and the cricoid cartilage was not opened. The same procedure of removing the growth and cooking its base as in the previous case was done by Percy's method and no cooling device employed. It must be remembered that the growth was located nearer the esophagus than in Case 1, owing to what followed. The thyrotomy was dressed open by packing on top of an up and down tube. The patient made a very rapid recovery, but he could not swallow. After the customary forty-eight hours he had to be fed by rectum for more than a week. At the end of that time it was possible to pass a stomach tube and he was fed through that, but it still was impossible for him to swallow, although local conditions appeared very satisfactory. At the end of the third week he could not swallow water, but could rice and mush. At the end of five weeks he could swallow anything. The tube was left out and wound permitted to heal.

The patient went back to Montana and I heard nothing from him until four months after, when he came in with a tracheotomy tube and a marked swelling on the right side of his neck. He stated that he had been feeling fine, constantly gained in weight, when one day he noted some pain in swallowing, then a sudden appearance of a swelling on the side of his neck, chill and fever and considerable difficulty in breathing. The doctor was called in and hurriedly took him to a hospital, where he performed a tracheotomy. This neck growth then disappeared somewhat slowly, but again reappeared. Then it again became much smaller, but now he cannot breath without the tube.

Examination shows that the man has not lost any in weight and within the larynx there did not appear to be a recurrence of carcinoma. There was, however, a sort of an edematous looking tissue about the right cord closing up the larynx. No motion to the arytenoids. The neck mass is not nodular, but smooth, hard and yet appeared to fluctuate somewhat. Slight temperature every afternoon.

My diagnosis was a possible pharyngo-esophageal diverticulum in consequence of the weakening of the wall due to the action of the Percy heater. I therefore cut down over the swelling and found a great deal of infiltration of the tissues of the neck. I removed some of this infiltrated mass and had it examined microscopically (it was found negative as to cancer). Coming down near the pharyngeal area, I opened into a cavity which was filled with a considerable amount of thick fluid containing white particles which were found microscopically to be necrotic tissue. A drainage tube was inserted and patient observed as to possible recurrence of carcinoma.

Conclusions in this case are:

(1) That he is possibly cured of his carcinoma of the larynx.

(2) That the location of the growth near the esophagus and the removal and subsequent cooking of this carcinomatous base without any cooling apparatus was probably responsible for the weakening of the esophageal wall with subsequent diverticulum formation.

(3) That had the doctor incised the swelling and put in a drain he might have avoided a tracheotomy.

*Subsequent course.* Within a few days another piece of tissue removed from the neck mass, showed a rapidly growing carcinoma. There was very likely a glandular infection present at the time of the first operation, but it could not be determined, as the patient had a very short, fat neck. I now decided to try out the method of coagulation by the diathermic process, which I wish now to demonstrate. We inserted into the tumor the flat metal electrode and the sharp needle point electrode opposite this flat surface having about 1 cm. of tumor mass between

the two electrodes. Now the current was turned on and from 100 to 1,800 milliamperes of electricity sent through. One observed the sizzling of the tissues and that if the finger was put on, one would feel that the tissues were very warm. The measurement of the head by a thermometer registered about one minute after the treatment 120° Fahr.

Such applications are made in 3-5 places at the same seance. Of course the skin and tumor are injected with novocain because the treatment is painful. After six weeks of treatment once or twice a week we found considerable degree of reduction of the tumor, which is not exactly a necrosis, but a mummification of the mass and falling off with the dressings. There is comparatively little odor to the wound unless neglected to be dressed. It is interesting to note the resistance of nerve and blood vessels to this treatment. The facial nerve is almost exposed and the heat from the treatment must undoubtedly reach the nerve, yet the facial muscles are in perfect action. The carotid artery was exposed and, fearing the possible erosion and fatal hemorrhage, I decided to put a ligature about it, at the innominate, thus being able to tie it in the event of such an accident.

A few days later a sharp oozing occurred, so that I decided to ligate the carotid. This, however, did very little good, because the following day a much more severe hemorrhage occurred, from which he succumbed.

Post mortem examination of the wound showed that the hemorrhage came from the internal jugular, which I considered thrombosed a long time before this.

The further conclusions in this case are that the carcinoma is not destroyed by the diathermia as we applied it, and that neither nerves nor blood vessels are easily affected by the degree of heat obtained by this strong current. The progress of the disease and treatment is illustrated in Figures from 1 to 7.

*Case 3.* Mr. Frtch. Aged 51 years. Began to notice a hoarseness in June, 1916. After about three weeks consulted a laryngologist, who treated his throat by local applications. On one occasion following the treatment he had a choking spell that alarmed the family. He was also rapidly developing difficulty in breathing, particularly on inspiration. He changed laryngologists, and the condition was recognized as a growth and suspected carcinoma.

At this stage the patient was referred to me, exactly seven weeks from the time he started to complain of hoarseness. On examination I found a pale looking mass the size and shape of a good sized hazel nut, being attached at the right side at and below the vocal cord near the arytenoid region. It was smooth in character and appeared to be quite free and movable, like a polyp. General condition of the patient was excellent. Operation for relief and positive diagnosis decided upon. This was performed at once. Local application to the oral cavity, pharynx and larynx of pure cocaine. Suspension laryngoscopy.

Fig. 1

While doing this the patient gave a sudden marked inspiration and sucked in this pedunculated tumor into the cavity of the larynx, completely shutting off his air. By means of a long pair of dressing forceps the tumor was brought back outside of the larynx, so that the patient could breath again. By means of Killian alligator forceps the pedicle of this tumor was grasped and without very much effort the whole growth was removed. Very little bleeding followed. The base of this growth remaining in the larynx was now thoroughly curetted and the Percy cautery applied.

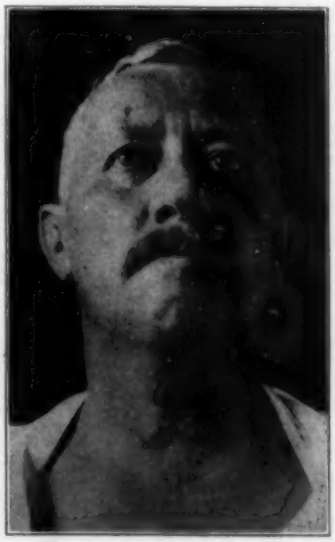

Fig. 2

Fig. 3

There was very little reaction following this procedure, and the patient considered himself cured. The microscopic examination of the tumor removed proved to be a small spindle celled sarcoma with very few blood vessels and blood lakes. It was decided to do a more radical operation should there be a recurrence. This occurred with such rapidity that within ten days the patient had difficulty in breathing. A laryngotomy by the aid of the Percy (cold iron) coagulation method was performed and the tumor removed. I employed the esophagus cooling tubes as well as the Leiter's coils externally, thus conforming nearer to the true technic of Percy. I closed the laryngeal wound primarily, but left in the tracheotomy tube for a few days. There was considerable toxic absorption from the wound, but the patient made an uneventful recovery and left for his home town three weeks after

Fig. 5

operation, with the tracheal opening closed. Two weeks later the patient began to show evidences of laryngeal obstruction, and the laryngologist in his home city advised him to return to me because he found a rapid recurrence of the growth.

The patient wished to defer doing this a few days, when one day he had a choking spell and the doctor had to do a hurried tracheotomy. As soon as he recovered from the shock, etc., of the last procedure he came back under my care. I found a smooth growth filling up the entire larynx and in the center a yellowish, firm, necrotic plug. I decided to reopen the larynx and found the entire ventricle filled out principally with this necrotic plug, which could not be dislodged. The microscopic examination of a piece of tissue removed, still showed the sarcoma. It was now decided to give him x-ray treatments by means of deep penetrating rays, right through the larynx fissure, which was being held open by a Jackson up and down tube. The patient was now beginning to show marked symptoms of toxic absorption, and it was thought best to

Fig. 4

Fig. 6

Fig. 7

discontinue the x-rays and try massive doses of radium. Therefore on March, 1917, the various shaped tubes and applications of radium were placed within and without the larynx and allowed to remain twelve hours at a time, for thirty-six hours. Altogether 200 mgms. of pure radium was used. The immediate result, that is within a day or two, was striking. The odor and what little pain there was became much less. On the sixth day we could all see a decided shrinking of the sarcomatous mass, but the existing necrotic plug from the Percy treatment did not appear to be influenced, except perhaps as to the toxic absorption from it being less.

*Subsequent course.* During the next three weeks the sarcomatous mass was seen to be shrinking, the neighboring skin of the neck much reddened and tender to superficial touch. Even the necrotic plug became loosened up, but whether that is due to the action of the radium or was about due to come off, is problematical. The fact remains that thus far, three weeks after the radium has been applied, he is in a better condition than he had been before the first operation. He is gaining in weight and is very hopeful of a cure.

Fig. 8

Fig. 9

It is, of course, my intention to make a subsequent report of this case at some future time.

The progress of the disease and treatments up to the present date are shown in Figures from 8 to 11.

*Still further report of course.* Since the presentation of this paper in February, 1917, the patient began to show evidences of marked toxic absorption, also rapid emaciation and evidences of increase in the necrotic mass. Soon after, he began to have great difficulty in swallowing, with marked infiltration of the esophageal-tracheal fistula, which led to a speedy end.

In spite of this fact, however, the progress of the case was much slower than I observed in similar

Fig. 10

Fig. 11

conditions, the patient dying from inanition. (Fig. 15 shows the conditions as found shortly before death.)

The final conclusions in this case are that neither the operation, the Percy cautery, nor the radium were able to stop the growth of sarcoma because the necrotic mass, following the application of the radium and the result of the original burning with the Percy cautery, appeared to be definitely outlined by a new growth of sarcomatous tissue. Another important point is that in the future when I make a diagnosis of this condition of sarcoma of the larynx I shall insist that a laryngectomy is the only procedure warranted in such cases.

Fig. 12

*Case 4.* Mr. M. This case has already been reported in the *Annals of Otology, Rhinology and Laryngology* (March, 1917) as a probably cured case of carcinoma of the larynx by means of suspension operation and deep penetrating x-ray treatments. I will, however, make an abstract of that report in this connection, since that will save time and be more complete.

Aged 54 years; always in good health; slight hoarse-

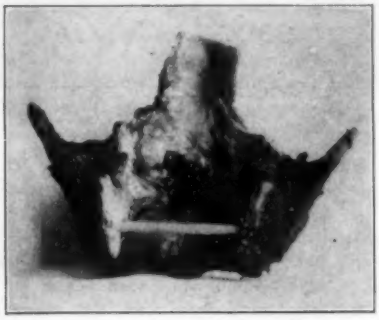

Fig. 13

ness of three years' standing. Consulted laryngologist, who found a small node anteriorly on left cord. Removed a particle, which was sectioned and diagnosed by competent pathologists as squamous celled carcinoma. This the patient brought to me with suggestion from his laryngologist to remove the larynx if it was the only thing to do, but try and save the voice if possible. The laryngoscopic examination verified the previously stated picture, and it was decided to do a thyrotomy, but to subject him to a preliminary deep x-ray treatment to possibly prevent implantation and sealing up of the lymphatics. The result from the x-ray (ten treatments) was remarkable in the reduction of the swelling and clearing of the voice. I now decided to change my plan and therefore suspended him and removed all the growth I could find. This proved to be carcinomatous microscopically. I had him x-rayed again for three erythema doses, twenty-six treatments in all, in the hope of completely eradicating the disease. He did beautifully in so far as the action and appearance of the larynx. There developed, however, a complication from the x-ray treatment that was somewhat alarming—namely, symptoms of myxedema. These promptly disappeared on the administration of thyroid gland. Patient went back to the coast apparently a cured man. After nearly a year he returned, saying that the doctor thinks there is a return and that his voice is not so clear. Examination verified these facts. I again suspended him, removed some small particles from the left anterior

vocal cord which showed microscopically not to be malignant. He received, nevertheless, another course of x-ray treatment and went back home apparently cured. Almost another year passed when he wrote saying that there was a return of the trouble, and I advised him to come back. Examination now revealed a considerable swelling at the seat of the old trouble, but it appeared to be smooth. I again suspended him and removed some of this swelling and subjected it to the microscope. Again reporting normal cells, principally inflammatory. I now treated him locally, with astringents, but instead of getting smaller it grew somewhat rapidly and looked cancerous. After a number of x-ray treatments were given and no improvement seen it was decided to operate more radically. Since the results from the thyrotomy with subsequent Percy coagulation treatment proved not to be successful in my hands, I proposed a laryngectomy, which the patient accepted reluctantly on account of the prospects of losing his voice. After promising and describing to the patient my idea of an artificial larynx and the good prognosis for relief if he was operated on before the cancer developed outside of

**Fig. 14**

the larynx, the patient consented. Under local anesthesia, apothesin one-half per cent solution and novocain one per cent solution, the following technic was employed:

A T-shaped incision was made, the horizontal incision passing above the hyoid bone and the vertical from the middle of the horizontal incision down to within an inch of the sternal notch. Severed the sterno-hyoid and sterno-thyroid muscles about their middle. Dissecting freely the trachea from the two lobes of the thyroid gland, I packed strips of gauze all around so as to wall off the mediastinum. After very carefully dissecting the trachea from the anterior wall of the esophagus I severed it (the trachea) from the larynx and turned it down toward the sternal notch, allowing it to protrude somewhat. It was stitched to the skin on either side. The larynx was now dissected upwards away from the esophagus until the pharynx was reached. Then the thyro-hyoid membrane was severed and the larynx removed, closed with sufficiently healthy tissue to insure that none of the malignant growth was left behind. The defect in the pharynx was reduced to the minimum and the incision united except in the center just below the hyoid bone, which is to become the subsequent place for the insertion of the artificial larynx. Considerable catgut was employed in the obliteration of the cavity. This became infected and there resulted a great deal of sloughing. In order to keep the food from coming out through the pharyngeal opening it was necessary to feed the patient with a stomach tube. Gradually as this opening contracted the patient could swallow without difficulty. Outside of this trouble, an uneventful recovery resulted as shown in Fig. 12.

The gross specimen Fig. 13, when opened, showed that the carcinomatous process was confined entirely within the larynx, but markedly involved the base of the epiglottis. A microscopical examination of this growth from the depths shows positive carcinoma. The next step was to construct an artificial larynx. The development and evolution of it would be very interesting to narrate, but since the same is not yet perfected, I will defer the detail description for some future publication. Suffice to say that a fairly stiff rubber tube was found to be the best material. It is about 2½ inches long by ½ inch in diameter. The upper end opening has a sort of a nipple in order to confine it to the opening in the pharynx, while the lower tracheal end is smooth and can move up and down, according to the motion of the head and neck. It, however, fits fairly tight so as not to permit any escape of air, while speaking. By means of this simple device (Fig. 14) the patient can whisper very well and can be clearly understood. Since it is covered, by a patient wearing a handkerchief or hand about the neck, most people think that the patient has a cold. The method of producing tone is now being experimented with on this patient. I have applied a means of compressing this rubber tube from the outside, thus narrowing its caliber at

one place, making a sort of a chink, and he is able to produce a sound. A couple of elastic bands worked right into the rubber tube, as had been suggested to me by Dr. Iglauer, is also a possibility. Whenever the patient eats he is compelled to remove this speaking tube device, but I believe that that objection will also be overcome in time, in that the patient will be able to get the head in such a position that nothing will pass into the tube. He is able to do it now at times.

In conclusion I wish to say that this patient has all the right to expect a complete cure from cancer, but a subsequent report will be necessary. If when this patient succumbs from no matter what cause outside of cancer, he is not thoroughly examined post mortem, we will not know whether he was cured or not.

## DISCUSSION (Abstract)

Dr. Thomas (of Perry) reported one sarcoma of the superior maxillary appearing in the roof of the mouth, in the region of the mandible, one at the alveolus of the superior maxillary, two sarcomas of the tonsil and one carcinoma of the larynx, all terminating fatally, also one case of rhinoscleroma which proceeded to a fatality.

Dr. Selig (of Chicago) reported a round cell carcinoma of the septum. The history was that it had been under the care of a man who had done repeated operation and had told the patient that she had polypus. During the summer previous to the time he saw her, she had been operated on several times, and no diagnosis had ever been made, but it was a carcinoma. Radical removal of the septum followed by prolonged use of the x-ray has resulted in the complete disappearance of all carcinoma up to the present time, which is about two years.

Dr. Beck (closing): I haven't anything to add in answer to the discussion, inasmuch as the gentlemen didn't disagree in anything particular except in reference to the terminology. All of you know we have malignant or galloping syphilis, so-called. The term malignant, as I have taken it, is a term that is accepted by the American Society for Control of Cancer. For instance, scleroma is not a carcinoma, and yet it has all the characteristics of a malignant disease, and I think must be so termed. The same is true of endothelioma endovascularis. Angioma progrediens fulminantes, a rapidly growing birth-mark, is a malignant growth, for it destroys the life of the patient, as does tuberculosis. Consequently, when we speak of malignant diseases, we usually understand sarcoma and carcinoma.

## PROTECTION OF MILITARY CAMPS AND CANTONMENTS.

The State Department of Public Health has made provisions for the protection of the military camps and cantonments in Illinois by thorough policing of the zones surrounding these temporary homes of the military forces. Each military camp and the zone surrounding it will be supervised by a sanitary unit made up of epidemiologists, bacteriologists, sanitary engineers, inspectors and quarantine officers, and especial attention will be given to water supply, sewage disposal, venereal disease, tuberculosis, food supplies and communicable diseases.

These units are now located in the vicinity of Camp Grant at Rockford; along the shores of Lake Michigan in the vicinity of Fort Sheridan and the Great Lakes Training Station; at the aviation camp at Rantoul and in the vicinity of Camp Lincoln and Camp Lowden at Springfield.

A sanitary survey, which is now in progress in and about Rockford, has already brought forth information indicating the urgent need of rigid precautionary measures.

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## STATE HEALTH ITEMS.

The equipment of the State Laboratory of Sanitary Engineering is now practically completed and is being rapidly installed. This will give the State Health Department its first complete equipment for all forms of sanitary investigation.

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Among the new features of the public health exhibit at the Illinois State Fair were models and booths devoted to tuberculosis and an attractive section showing the means of publicity employed by the State Department of Public Health. In the latter exhibit, Alfred S. Harkness, whose health cartoons have received unusual attention throughout the nation, was busily engaged at his easel while a printer, at a Gordon press, was printing Harkness cartoons and State Department of Health epigrams for distribution as souvenirs. In the tuberculosis exhibit was a mechanical model depicting a battle scene with a continuous line of wounded men coming back from the front and a similar line of those incapacitated by tuberculosis which has developed under war conditions. Another booth was employed to show the models of sanatorium construction recommended by the Department to the seven counties now engaged in the establishment of county tuberculosis sanatoria. The Better Babies Contest, which has proven a great drawing card at the State Fair for several years past, was better and larger than ever. In one booth, young women were securing recruits for the Illinois Public Health Reserve Corps, made up of men and women who are willing to do their war "bit" at home in the conservation of the public health.

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SEPTEMBER, 1917

## Editorials

### DRAFTING DOCTORS.

Somewhat recently a number of editorials were published in various newspapers and other publications, including a few medical journals, on the above subject. The burden of all these was that the army needed physicians, the doctors were not enlisting, and the draft for physicians would become necessary and would follow.

The press was not to blame perhaps for such indulgence, as the cry came first from high sources. Such statements, we think, are unwarranted and ill-advised. The doctor is not easily scared, is rather hard to drive, and furthermore, the statements were not quite correct.

If an army of 3,000,000 men is raised, it is estimated that 21,000 doctors will be needed in the Reserve Corps. On July 25th, 5,000 doctors had accepted commissions in the Medical Reserve Corps, or practically one-fourth of the total number required for the contemplated army of 3,000,000. Another 6,000 doctors had on that date been recommended for commissions. These figures are from the government's reports. The great majority of these will accept commissions without doubt. On August 8th, 910 physicians of Illinois had been recommended for commissions, and many of them had been accepted. Others were still pending. According to the Journal of the American Medical Association, on August 4th approximately 16,000 physicians had made applications for commissions in the Medical Reserve Corps. Of this number nearly 14,000 had been recommended for commissions. These estimates do not include the physicians who are with the National guard. These figures show that the doctors are volunteering much faster than the army is being selected.

We do not take kindly to the terms "drafting" and "conscripting." They sound rather harsh to us. In another issue we stated that in our opinion the Illinois physicians would come to the aid of the army when needed. We still believe they will, and up to this time they have fulfilled the prediction. We have no reason to think that the profession of Illinois, or any other state, will fail in its duty.

The military demand on the medical profession will be a heavy burden. Should there be a shortage in the medical corps, the government, and not the profession, should bear the stigma. All of the states permit many of the irregular cults to, in some way, practice medicine, until the business of the regular physician is in competition with these spurious practitioners. The government is not accepting these irregular practitioners for army medical service, but expects the regular profession to carry the entire load. In other words, the irregular may practice on civilians, but not on army men. At this time we have not heard of a single osteopath or chiropractor being in any way connected with the army service.

Aside from this there are other reasons that one might suspect would make the physician slow in offering his services. The great majority of physicians, who are doing general family practice, realize that if kept away from their offices for one or two years, their business is gone, and they will, on their return, be compelled to start and build an entirely new clientele. A man hav-

ing financial responsibilities may well be pardoned for waiting until he is actually wanted before volunteering his services to the army.

Other men, who know their business well, who do not take kindly to military drill and discipline, and care not for the splendor of a military uniform or of camp life, do not see the necessity of months of time spent in learning what appears to them a useless performance prior to the actual service of warfare. This to them appears as time wasted. They will gladly go when called to actual warfare, and perhaps a doctor may care for a wounded soldier as well without this military training.

There are many other reasons why physicians might be slow in accepting commissions in the Reserve Corps, not the least of which is the failure of our army to give just recognition to its medical department, as well as the unjust method of ranking the Medical Reserve Corps' volunteers.

A short time ago a member of the English parliament wanted an order passed disbaring American physicians from the English medical service, because, in his opinion, men, ranking as our American doctors are ranked, could not be efficient. A confrere understood the situation in the United States, and American doctors are still helping the English to care for their wounded. Our Allies recognize their medical departments, and rank the doctors accordingly.

All of these and other reasons, if necessary, could be used as excuses for the doctors being slow in volunteering, but up to this time, apologies are not necessary. When there is actual need of doctors for actual army service, there will be no shortage. The profession is seldom slow in recognizing its duty, and never slow in performing it.

## ANOTHER IMPOSITION

Last year the Health Commissioner of Chicago directed that all school children be examined by physicians for contagious diseases before entering school, and condemned the doctor who would not do this examining and certificate writing free of charge. The profession did the work, but let the Commissioner know what it thought of such procedures, and presumed the offense would not be repeated.

Recently the profession of Chicago has been circularized by the Commissioner, directing an extensive examination of school children, and telling the doctors they could go to the engineers of school buildings and get blank examination certificates for their reports. To examine a child and get the history and data asked for on this blank will, if done in any sort of manner, require twenty minutes' time, and, if done thoroughly, so that the certificate is of any value, will require at least thirty or forty minutes. The circular letter closed by saying, "The question of remuneration for your services is a matter between you and your patient. We feel sure that people who are unable to pay for this service will be cared for free of charge," and was signed by the Health Commissioner and the Superintendent of Schools.

The whole thing, of course, is a repetition of last year's imposition, couched in slightly different language, requiring in addition a general examination of the child for disease or defect it may ever have had, plus the filling out of a long certificate. The Commissioner is well aware that many families cannot afford to pay for their examinations, and presumes too much on professional good nature, by asking in a thinly veiled manner for free service.

Verily, it is time for Chicago to change its method of selecting its Health Commissioner.

## MEMBERS OF THE SOCIETY IN THE ARMY SERVICE.

We have endeavored to secure a list of the members of the Society, or of the doctors in Illinois, who are now in active army service. We had hoped to have this for publication, and could then add to such a list the names of doctors entering the service later. We still are in hopes of securing the names of doctors serving the government, but at this date we have not been able to procure them. The list, of course, if corrected, would change every day, as new men are volunteering their services. The clerical force at the disposal of the army is just as busy, no doubt, as is the training officer or the newly recruited private, and has little time in which to make statistical data.

## BEG YOUR PARDON!

In the discussion on the paper by Dr. Orr in the August JOURNAL, the reporter credited Dr. C. B. Brown, Sycamore, with attending three

thousand obstetrical cases without meeting either placenta previa or eclampsia. Dr. Brown modestly disclaims the number and suggests as more accurate: "Delivered two thousand women and had not done a Cesarean section for any case of placenta previa or eclampsia nor anything else—and all have lived."

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## WAR MEETING FOR HEALTH OFFICERS.

A war meeting will be held at Washington, D. C., October 17-20, 1917, by the American Public Health Association. This will replace the annual meeting which was to be held at New Orleans, La., Dec. 4-7, 1917.

The papers and conferences will deal largely with the health problems created by the great war—the food supply, communicable diseases among soldiers, war and venereal disease, war and the health of the civil population, etc.

President Wilson has said: "It is not an army we must shape and train for war; it is a nation." Go to the Washington meeting; then come back and do your bit!

Washington will be crowded and those interested are urged to reserve hotel accommodations at once. It will be easy to cancel reservations; but it may be impossible to obtain rooms at the last moment. Any hotel or railroad can give a list of Washington hotels.

Preliminary programs will be automatically mailed to all members of the A. P. H. A. about Sept. 15th. Non-members may receive them free by writing to:

THE AMERICAN PUBLIC HEALTH ASSOCIATION.
126 Massachusetts Ave., Boston, Mass.

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## SOME OBSERVATIONS DURING THE RECENT EXAMINATION OF CONSCRIPTED MEN FOR THE ARMY.

1. Most of the subjects had tachycardia—not natural, however. The occasion produced it.

2. All scrotal conditions, viz: Hydrocele, varicocele, epididymitis, orchitis, etc., were invariably found on the left side.

3. Practically all colored candidates are flat footed, but have perfect teeth.

4. Very few subjects were rejected on account of their feet.

5. We found some who thought they were totally disabled on account of "stomach trouble," "nervousness," etc.

6. We found a number who should wear glasses, but do not.

7. A number should be circumcized (not specially to qualify them for Army service).

8. Some had active perceptible gonorrhea.

9. We had to inconvenience some blind men, epileptics and paralytics by a re-examination.

10. We found some hard to examine because they were deaf or could not speak English.

11. Some who do not know the English letters were asked if they could see the small-type line of letters at the bottom of the test card.

12. The first day's work seemed harder than the second and third days.

O. C. CHURCH, M. D.

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## ARMY ROENTGENOLOGISTS

### SCHOOLS OF INSTRUCTION IN MILITARY ROENTGENOLOGY

At the direction of Surgeon General Gorgas a conference of Military Roentgenologists was held at Cornell Medical College, New York City, June 11-23, 1917. The Surgeon General ordered this conference with a view to standardizing x-ray apparatus and courses of study in roentgenology.

Major Arthur C. Christie from the Surgeon General's office and Major P. W. Huntington from the Army Medical School represented the army. The instructors, who will have charge of the various schools for Military Roentgenologists in different parts of the United States, were present together with members of the Committee on Preparedness of the American Roentgen Ray Society.

The following instructors have been ordered to active duty at stations noted: Major F. H. Baetjer, M. R. C., Baltimore School of Military Roentgenology; Captain E. S. Blaine, M. R. C., Chicago School of Military Roentgenology; Captain W. B. Bowman, M. R. C., Los Angeles School of Military Roentgenology; Major A. W. George, M. R. C., Boston School of Military Roentgenology; Major A. L. Gray, M. R. C., Richmond School of Military Roentgenology; Majors L. G. Cole, M. R. C. and L. T. LeWald, M. R. C., New York School of Military Roentgenology; Major W. F. Manges, M. R. C., Philadelphia School of Military Roentgenology; Captain E. H. Skinner, M. R. C., Kansas City School of Military Roentgenology, and Dr. G. C. Johnston, Pittsburgh School of Military Roentgenology.

The following information regarding the plans formulated at this meeting is given for the benefit of these interested:

The government is going to give special training in this work to selected officers in the Medical Reserve Corps. They will be instructed in military x-ray work at the several schools. Officers who are ordered to

take this course will be detailed upon pay according to rank for the period of instruction. The length will be about three months but officers who have had unusual experience in x-ray work or those who become proficient before the end of the course will be certified to the Surgeon General as soon as they have become qualified. Those who show lack of adaptation or application will be relieved of this detail and assigned to other duties or discharged by order of the Surgeon General.

Those desiring to take this work will proceed as follows: Write a letter to the nearest school immediately indicating your preference for this x-ray course; make application for a commission in the Medical Reserve Corps, U. S. Army, through the nearest recruiting medical officer; write a letter to the Surgeon General, Major Christie, asking to be placed upon this x-ray instruction detail at the nearest school and attach this letter to the papers which are sent in at the time you take your examination for the commission; write a letter to the nearest school when you have received your commission and have accepted it stating your readiness for orders to active duty.

The government is going to the expense of training these selected officers as military roentgenologists and will, therefore, be desirous of using them in this capacity in the field, base hospital or other detail, to the greatest possible extent.

## Correspondence

### PHYSICIANS' LEASES.

August 18, 1917.

*To the Editor*: The Chicago Rotary Club has learned that a great number of physicians who have enlisted for service during the present war are embarrassed by unexpired leases. In certain cases, such corporations from whom they rent have refused to cancel leases. It seems to the Chicago Rotary Club that when physicians are so much needed in the United States army every effort should be made to relieve them of contracts rightfully binding in times of peace, but which might better be waived in times of national peril.

We all know that the physician giving up an established practice to enlist makes perhaps the biggest sacrifice of us all, because his business depends absolutely on personal contact. The day he leaves his business ceases. But his lease goes on. Yet our country is calling for more physicians, and many patriotic doctors everywhere are trying to arrange their affairs to go.

It is possible to create a strong public opinion favoring the canceling of leases in such cases. If advisable, the matter can be carried for consideration to Congress. But first, the Physicians' Lease Committee wants figures and facts. We are sending this letter to 20,000 physicians scattered all over the United States. May we ask you personally to help us by promptly filling out and mailing back to us the enclosed postal card? Kindly do it today.

Your prompt cooperation will place in the hands of your committee the necessary data for an effective presentation of the facts before proper legislative bodies.

We want to help. We believe, in fairness to all, a great work can be done. We know that you will be glad to mail the card today. When we receive it, you will have our earnest thanks for your cooperation.

Yours very sincerely,

CHICAGO ROTARY CLUB,
R. R. Denny, Chairman.
c|o Dennos Food Sales Co., Chicago, Ill.

### WHAT THE GOVERNMENT ASKS OF THE PRESS.

The desires of the government, with respect to the concealment from the enemy of military policies, plans, and movements, are set forth in the following specific requests. They go to the press of the United States directly from the secretary of war and the secretary of the navy, and represent the thought and advice of their technical advisers.

For the protection of our military and naval forces and of merchant shipping, it is requested that secrecy be observed in all matters of:

1. Information in regard to the train or boat movement of troops. Such information is at all times and under all circumstances dangerous and should be scrupulously avoided.

2. Information tending directly or indirectly to disclose the number or identity of troops in the expeditionary forces abroad.

3. Information tending to disclose the names of line officers in expeditionary forces and reference to individual units of these forces. Only names of staff officers are permissible.

4. Information calculated to disclose location of the permanent base or bases abroad.

5. Information that would disclose the location of American units or the eventual or actual position of the American forces at the front.

6. Information of the movement of military forces toward seaports or of the assembling of military forces at seaports from which inference might be drawn of any intention to embark them for service abroad; and information of the assembling of transports or convoys; and information of the embarkation itself.

7. Information of the arrival at any European port of American war vessels, transports, or any portion of an expeditionary force, combatant or noncombatant, until announcement is authorized by the secretary of war or the secretary of navy.

8. Information of the time of departure of merchant ships from American or European ports, or information of the ports from which they sailed.

9. Information indicating the port of arrival of incoming ships from European ports or after their arrival indicating, or hinting at, the port at which the ship arrived.

10. Information as to convoys and as to sighting of friendly or enemy ships, whether naval or merchant.

11. Information of the locality, number, or identity of warships belonging to our own navy or to the navies of any country at war with Germany. Papers published in ports should with especial care refrain from giving information to enemy agents in regard to ships stationed or calling at such ports. Because dangerous news is known locally, it does not follow that it can be safely published. Nonpublication of dangerous news obliges the enemy to rely on spies actually in the localities concerned, thus adding difficulties and delay in its transmission.

12. Information of the identities of American merchant ships defending themselves against submarines, and the identities of their captains, their gun crews, and crews. No matter from which side of the ocean the news, it is asked that this information be withheld from publication. Editors will appreciate the importance of cooperation to withhold from the enemy such information as might expose the officers and men of merchant ships to the danger of cruel and outrageous reprisal.

13. Information of the coast defenses of the United States. Any information of their very existence, as well as the number, nature, or position of their guns, is dangerous.

14. Information of the laying of mines or mine fields or of any harbor defenses.

15. Information of the aircraft and appurtenances used at government aviation schools for experimental tests under military authority.

16. Information of all government experiments in war material.

17. Information of secret notices issued to mariners or other confidential instructions issued by the navy or the Department of Commerce relating to lights, lightships, buoys, or other guides to navigation.

18. Information as to the number, size, character, or location of ships of the navy or of the merchant marine, ordered laid down at any port or shipyard, or in actual process of construction; or information that they are launched or in commission.

19. Information relating to dry docks and to all classes of work, repairs, alterations, or construction performed in connection therewith.

20. Information of the train or boat schedules of traveling official missions in transit through the United States.

21. Information of the transportation of munitions, or of war material.

Photographs.—Photographs conveying the information specified above should not be published.

These requests go to the press without larger authority than the necessities of the war-making branches. Their enforcement is a matter for the press itself. To the overwhelming proportion of newspapers who have given unselfish, patriotic adherence to the voluntary agreement, the government extends its gratitude and high appreciation.

THE COMMITTEE ON PUBLIC INFORMATION.
By GEORGE CREEL, Chairman.

July 30, 1917.

# Public Health

## NEW STATE RULES FOR THE CONTROL OF PULMONARY TUBERCULOSIS.

While pulmonary tuberculosis has been a reportable disease in thirty-eight states and territories for a number of years past, the disease has been more or less ignored by public health officials in Illinois. During 1915, under the general rules for the control of communicable diseases, tuberculosis became reportable, but, with only a few exceptions, municipal health authorities failed to enforce this provision.

The awakening of the civilized world to the fact that tuberculosis stands second only to the wounds of battle as a medical war problem, and the difficulties encountered by the exemption boards on account of the fact that even open cases of tuberculosis were not a matter of public record, prompted the State Department of Public Health to promulgate rules for the control of the disease which are effective in Illinois beginning August 1, 1917. These rules, when submitted to physicians, internists, phthisiotherapists, health officers and military authorities, have received the highest commendation and are declared to be perhaps the most reasonable and at the same time the most effective in the nation.

The rules require that every physician, attendant, parent, householder or other person having knowledge of a known or suspected case of pulmonary tuberculosis must immediately report the case to the local health authorities and they further require that the physician shall notify the patient and his family as to the nature of the ailment and shall give specific instructions to prevent infection of other members of the patient's household and to protect the general public. The health officer, upon receiving notice of the case, shall visit the premises, or cause the premises to be visited, to satisfy himself that reasonable preventive meaures shall be observed.

The restricting clauses of the rules apply particularly to open cases of tuberculosis, but it is held that every case shall be regarded as an open case until three specimens of sputum taken within a period of three weeks and examined in a public laboratory shall be found to be negative. Attention is drawn to the fact that sputum examinations are made by the State Department of Public Health in its diagnostic laboratories without cost either to the patient or the physician.

The rules forbid a patient suffering from open pulmonary tuberculosis occupying a sleeping room with any other person and specific directions are given as to the disposal of sputum and the control of room infection through coughing.

Under the rules, food cannot be sold or given away from premises in which there is housed an open consumptive, although the local health officer is permitted to modify this rule after personal inspection of the premises and after satisfying himself that all precautionary measures are being observed.

The rules also forbid any consumptive engaging

in the handling or sale of food products and exclude from schools all teachers, pupils or school employes suffering from tuberculosis while tuberculous nurses are forbidden to attend sick persons or young children.

The responsibility is placed upon property holders and agents of notifying the local health authorities of the death or removal of tuberculous tenants or householders and such owners and agents are forbidden to rent the property to others until disinfected by the local authorities.

Failure to comply with any of the provisions of these rules and regulations subjects the health officer, physician, nurse, householder or patient to a fine of not more than $200 for each offense or imprisonment in the county jail for not more than six months or both, at the discretion of the court.

## PROGRESS IN MEDICAL LICENSURE IN ILLINOIS.

*Health News*, the official bulletin of the State Department of Public Health, in its issue for August, reviews the progress made during the past four or five years in medical examination and licensure in Illinois. This article summarizes the work of the State Board of Health in the examining and licensing of physicians, other practitioners and midwives, through the enactment of the Medical Practice Act of 1917, and until the function of licensure was turned over to the newly created Department of Registration and Education under the provisions of the civil administrative code.

It will be recalled that, through a decision of the Supreme Court, the State Board of Health was declared to have no authority to revoke licenses issued prior to 1899 after the passage of the Medical Practice Act of that year. This weak and embarrassing position was remedied by a law enacted during the legislative session of 1915 at the instance of the Board.

During the past few years the examination of "other practitioners," or those authorized to treat human ailments without the use of drugs or operative surgery, has been so changed that these candidates answer the same questions given to physicians, except in the subjects of materia medica, therapeutics, operative surgery, obstetrics and practice.

The review calls attention to the fact that, while in past years candidates for licensure as midwives were accompanied at examinations by interpreters, who, in many instances, were also the candidates' instructors in midwifery, this objectionable practice was done away with several years ago; the translation of the questions being assigned to a recognized bureau of interpretation and the questions being translated by the department of foreign languages of the University of Illinois.

The Medical Practice Act of 1917, recognized as the best Act ever operative in Illinois for the regulation of the practice of medicine, is largely the result of the experience and observations of the State Board of Health during the past few years, and many of the features of examination and licensure made statutory under that law were already being employed at the time of its enactment.

The practical examination of medical students applying for licensure in those subjects requiring definite demonstration, was adopted by the State Board of Health some time ago; but, on account of the passage of the civil administrative code transferring the functions of examination to another department, and the expenditure in time and money in instituting practical examinations, definite action in this feature of examination was deferred.

The summary cites various progressive features of the new Medical Practice Act, which have already been pointed out in these pages.

## DIVISIONAL ORGANIZATION OF THE STATE DEPARTMENT OF HEALTH.

The State Department of Public Health, under the direction of Dr. C. St. Clair Drake, which takes the place of the State Board of Health which has been charged with the supervision of public health in Illinois since 1877, has completed its organization dividing its activities under several important subdivisions each with its individual chief.

Dr. Drake, who is director of the department, and virtually "health commissioner" of Illinois, served for many years with the Chicago Health Department before being made secretary of the State Board of Health by Governor Dunne something over four years ago.

The assistant director is Dr. George Thomas Palmer, who became affiliated with the department on account of the paramount importance of the tuberculosis war problem of the present war, and who is also chairman of the Tuberculosis Committee of the State Council of Defense and who has been president of the Illinois Tuberculosis Association for the past five years.

Amos Sawyer, chief clerk of the Executive Division, has served for many years as chief clerk of the State Board of Health and held the position of acting secretary of the board for a number of months after the death of the late Dr. James A. Egan and before the appointemnt of Dr. Drake.

The Division of Communicable Diseases is headed by Dr. John J. McShane, who rendered notable service as health officer of Kenosha, Wis., and at Akron, Ohio.

Dr. Clarence W. East, who has been connected with the State Board of Health for several years in the capacity of District Health Officer, is serving as acting chief of the Division of Tuberculosis.

The diagnostic laboratories of the Department, which constitute a separate division affiliated with the Division of Communicable Diseases, is in charge of Dr. George F. Sorgatz, for some time State Bacteriologist, as Acting Chief.

The Division of Sanitary Engineering, which is undergoing extensive development and expansion, is under the supervision of Paul Hansen, who has been

connected with the State Board of Health since the initiation of a department of sanitary engineering by that organization, and who was formerly connected with the State Water Survey and the University of Illinois. Mr. Hansen is now in the service of the United States Army as a sanitary engineer and, in his absence, the Division is under the temporary supervision of Maurice Sjoblom, Assistant Engineer of the Division.

Paul L. Skoog, Acting Supervisor of the Division of Surveys and Rural Hygiene, served as Assistant Superintendent of Health of the City of Springfield and has been actively identified with the original sanitary survey of Springfield, the Russell Sage Survey of Springfield and the survey of Cumberland County, conducted by the United States Public Health Service and the State Board of Health. Mr. Skoog has also served with the State Food Commission and as Dairy Inspector for the State Board of Health.

The Division of Vital Statistics is temporarily under the direction of Orrin Dilley, who has been connected with the registration of vital statistics in Illinois for the better part of twenty years.

The Division of Child Hygiene and Public Health Nursing, which represents an entirely new activity in Illinois, is being rapidly developed. Mrs. Esther Werner, R. N., formerly of the Chicago Visiting Nurse Association, and recently connected with the Chicago Health Department, is serving as temporary supervising nurse.

This office staff, working in conjunction with the district health officers, whose work was created a few years ago, gives to Illinois a specialized health service such as the State has never known before.

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The Sanitary Survey of the City of Freeport, carried out by the State Department of Public Health in conjunction with local health authorities and public-spirited citizens, has been completed and the final reports are in process of preparation in the offices of the department.

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While there has been a larger number of cases of anterior poliomyelitis reported in Illinois during the past six months than during a similar period in 1916, the State Department of Public Health contends that the actual prevalence of the disease has been less and that the apparent increase is due to earlier and better methods of diagnosis.

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# Society Proceedings

## COOK COUNTY

### CHICAGO OPHTHALMOLOGICAL SOCIETY

A regular meeting was held February 21, 1917, with the President, Dr. Paul Guilford, in the chair.

### EXHIBITION OF A CASE OF ANIRIDIA

Dr. Emory Hill reported the case of a girl, aged nine years, whose vision had always been poor; the eyes had always oscillated and the pupils were very large. There seemed to be practically complete absence of the iris; the ciliary processes were not visible; the cornea, lens and vitreous were clear, the fundus appeared normal; there was myopia and astigmatism. Family history negative; no history of similar ocular defects obtainable. The nystagmoid movements resembled the searching movements of an almost blind eye more than nystagmus. At times, a vertical, and also at times a horizontal, motion is more noticeable than the others. She had glasses three years ago correcting 2.5 D. myopia and 3¼ astigmatism which now give 20/100 vision. Reduction showed a little more than 2½—in each eye and —4 cylinders in each eye with 21/70. The absence of the cornea or lenticular opacities seemed to be somewhat unusual and the absence of any evidence of heredity was very unusual. It is supposed that absence of the iris is the particular eye defect which most often shows a history of some ocular defect in past generations. The theory generally accepted is that it is a defect of development and not the result of intrauterine inflammation.

Dr. Hill thought that perhaps the theory suggested by Hess and supported by George Coates that there is a stricture advancing around the lids which means a new growth and the iris eventually protrudes these two, allowing the entrance of the iris between the lens and cornea, was a good one. All of the theories suppose that there is something which interferes with the pushing in of the lens.

#### DISCUSSION

Dr. William A. Mann reported a similar case in which the best vision he could obtain was, for the right eye, —9 gave 20/200 and the left —5.5— gave 10/200. The patient was a drug clerk who was using —6 and said he could not read well with his glasses. In his case the lens had a number of striations and the fundus was indistinct. He gave him bifocals and with the addition of + 3.50 for close work he could get a Jaeger 6. There was no heredity in his case.

Dr. Charles P. Small said that in his case, aside from the aniridia, which he considered congenital, both cornea were sclerotic. The patient was thirty years old; she had gone to school and could see perfectly until she was about fourteen. The first symptom was a cataract which developed in the right eye. This was needless, and the white spot appeared on the cornea shortly afterward, and increased until it covered the lower part of the cornea. In the left eye she has striae which are visible around the periphery of the lens. She could not expect much increase in vision because of the sclerosed condition of the cornea, although from 4/200 it had increased up to 11/200. There was marked lateral nystagmus. Family history in this case was negative.

Dr. Hill, in closing, said that one point which was worthy of mention was the frequent inflammatory reaction after any attempt to operation upon these cases. So far as he knew there were very few reports on the anatomical findings in these eyes. Generally there were the rudiments of the ciliary processes; there was some stump of the iris which had been adherent, and there had been reported a considerable overdevelopment of the pectinate ligament, the condition remaining in the adult eye as it was in the fetal eye.

## SPECIFIC AND TUBERCULAR KERATITIS; COMPLETE DETACHMENT OF THE RETINA

Dr. Edward F. Garraghan said that the first case was a little girl 12 years of age. The vision of both eyes was very good until April, 1916. The right eye was reddened but not painful; vision 5/200. The cornea showed no ulceration but presented deep infiltration with a whitish mass. The iris reacted under atropin and was kept dilated. The teeth were slightly irregular. The Wassermann test gave a [illegible] reaction. The patient had been placed on potassium iodid up to 30 drops, 3 times a day, and given mercurial rubs, and the infiltration had gradually cleared up until at present vision was 20/40 with no sign of infiltration at all.

The tubercular keratitis case was a patient aged 27 years, of good family, married 9 years, one child, a girl aged 8 years who is delicate and has enlarged glands. The patient had had 4 operations in 18 months, 3 times on an old goiter. There was a slight swelling over the right eyelid. One month after the goiter operation last May the right eyeball became inflamed. The conjunctiva became injected and the cornea became involved. The sight gradually diminished and there was pain nearly all the time. Examination showed that the sclera was very much injected and painful to touch. There was deep corneal infiltration. The iris reacted sluggishly to atropin. The Wassermann test was negative, the von Pirquet positive. There was severe exacerbation of all the eye symptoms. Tuberculin was given by injection, ½ mg. which after 8 to 10 days was increased to 1 mg. and after another 10 days to 1½ mg. The eye had gradually improved under the treatment.

Family history: Mother died two years ago, cause unknown; father died 10 years ago, had had considerable bronchial trouble. One brother died of tuberculosis. The patient's child has tuberculous glands. The diagnosis was made on the subjective findings. The patient was on iodide for a while but this made things worse. On the tuberculin she had improved right along. She can now see trees and when first seen saw only shadows.

### DISCUSSION

Dr. George F. Suker asked whether the cornea in the little girl with inherited syphilis presented any small islands of apparent infiltrates from which linear striations seem to arise and pass into the corneal stroma, or if corneal striations were the principal feature.

It had been his obaervation that such cases as presented the first named condition made a far better recovery as to visual acuity and yielded more readily to efficient treatment than those cases which came under the second group.

There is no doubt but that there are two types of syphilitic keratitis—one in which the spirochete can be found in the meshes of the cornea, and in such cases the keratitis is a direct expression of the activity of the spirochete; in the second type, the keratitis is the apparent result of the syphilitic toxin itself, the spirochete not being present in the cornea, but may be occasionally found in the circum-corneal circumference.

In the first type the corneal involvement is not as deep as in the second or striated type. In the former, the antispecific treatment is much more efficacious than in the second type, in which latter the general constitutional condition needs very much greater attention.

It seems as if the one type is a local expression in the cornea of the spirochete in an inherited syphilis, while in the other it is an apparent local condition resulting from the toxin of a generalized inherited syphilis in which the spirochetae are "fast"—much on the order of a "sympathetic theory," as it were.

As to the second case, tuberculous keratitis, he wanted to warn against the promiscuous use of the diagnostic tuberculin test, for in many in whom it was used in which a focal reaction followed, the eye went from bad to worse. Neither ought the ophthalmologist himself make the test without the collaboration of a competent internist. Small therapeutic doses at longer intervals are more effective and safer than rapidly increasing doses at comparatively short intervals. No dose, either therapeutic or diagnostic, ought ever to cause a focal ocular reaction, as more often than not greater harm is done than is gained by establishing the true diagnosis. A thorough physical and clinical examination, including x-ray chest pictures and the like, will often avoid the use of a confirmatory diagnostic injection.

For the therapeutic injections, begin with the smallest dose and be extremely cautious about increasing same; always be guided by the physical and clinical condition of the patient resulting from the injection whether to increase or decrease the therapeutic dose. In such cases, not only the local treatment is of value, but the general constitutional treatment of tuberculosis as such is of as much if not greater value.

Dr. Suker called attention to an admirable article on the subject by Dr. Hiram Woods, presented at the Memphis meeting (1917) of the American Academy of Ophthalmology and Oto-Laryngology which fully expresses his own views on the matter in concrete form and advised the members to avail themselves of this article.

Dr. Oscar Dodd said he had had a number of cases of tuberculosis of the cornea and felt like emphasizing the point made by Dr. Suker regarding too large doses or increasing them too rapidly. Even with the greatest care he had frequently seen focal reaction, and the condition made very much worse, it sometimes taking 2 or 3 weeks to quiet the eye so that further treatment could be given. His method of treatment was to keep the dosage of the tuberculin down to a point where it did not cause any marked focal reaction, and in these cases he had seen beneficial results. He thought oculists did not pay sufficient attention to the handling of these cases in a general way. If the patient was not under good hygienic conditions no amount of treatment would be of avail. Good results may be obtained where the patient has good care with plenty of good food and fresh air and the other things generally used in tubercular cases. In cases where the hygienic conditions could not be controlled the condition was bound to grow worse in spite of anything that could be done. Dr. Dodd differed with Dr. Suker as to the time between injections. He thought they should not be repeated too frequently but believed a small dose given once every week or 10 days, if the case was watched carefully, was all right.

Dr. Garraghan, in closing, said that the case of retinal detachment was interesting because of the great extent of the separation, having the appearance of a plaited funnel. There were no premonitory symptoms and almost complete sudden blindness. From the standpoint of treatment little could be expected as the case was of two months standing when first seen. The case was that of a young man, age 22. Patient was seen for the first time on January 3, 1917. Two months previous to this date he became aware of blindness in right eye in a rather peculiar way. Having a sensation of foreign body—left eye—he closed the lid and for the first time became aware of blindness in right eye. No history of injury; no pain in eye; transillumination shows absence of tumor; no tension; only light perception. There is complete detachment of retina.

## THE INTERRELATION BETWEEN EYE, EAR, NOSE AND THROAT

Dr. Joseph Beck said he might have entitled the presentation better by calling it the discussion of exophthalmos and recession or protrusion of the eyeball, for that was what the cases represented. He presented the cases from the standpoint of the conditions about the head and neck, and particularly emphasized the factors which had presented themselves in these cases in relation to the production of exophthalmos and anophthalmos, and especially in reference to the treatment which could be said to bear relation to the laryngologist.

Case 1. Recession of the eyeball. This patient had been referred to Dr. Beck on account of severe pain on the side of the head and inability to breathe through the right nostril; and a marked recession of the right eye. The conditions at that time were not seen by Dr. Loeb, and Dr. Beck did not make the measurements by the instruments most of the men were familiar with, but by another. A marked difference was very apparent in the two eyes. There was also a paresis of the hypoglossus, and intense pain and paralysis of the right recurrent laryngeal nerve and a loss of sensation in the superior laryngeal nerve. There was slight atrophy of the shoulder muscle, although the movement was all right. There was a hard, irregular tumor the size of a hen's egg on the side of the neck, growing quite rapidly, which developed after the patient came to him, and also a tumor back of the nose. He removed a piece of the tumor back of the nose which appeared to be a sarcoma. On the drum there was a linear port wine reddish mark which looked as if there had been a hemorrhage inside the drum. In the course of time there was rupture of the drum. The ears were treated, with the result that the tumor practically disappeared. There was now one on the other side which looked like glands. The eyeball had gradually come forward, the recurrent laryngeal nerve had begun to act so there was some action in the vocal cord, and there was some sensation.

The proposition was what was the cause of the recession of the eyeball? They had assumed that the cause was an irritation of the sympathetic, a destruction of the sympathetic and exophthalmos.

Case 2. This case was one of marked exophthalmos in a young lady of whom Dr. Beck showed photographs taken at different ages when she had no exophthalmos. The exophthalmos developed gradually with the growth of the tumor. The proposition was the disappearance of all her symptoms of exophthalmic goiter after the operation that is now in vogue, the removal of tonsils in connection with exophthalmic goiter. The young lady had not been under his care for this operation but she had two very beautiful scars, one for the purpose of ligating the thyroid vessels and the lower incision was made for the removal of the goiter. Subsequently to that her tonsils were removed. The patient came to him on account of nasal trouble. Operation was done on the thyroid, and after it the nose became completely blocked. The condition was a myxedematous structure, and there were other symptoms of myxedema. This patient had the usual effect on the pulse rate, the body weight, etc., and the nasal obstruction was very troublesome; this was probably a permanent condition. He had never seen a case where the desired results were obtained and still the eye remained the same.

Case 3. This woman, so far as the history shows, never had a tumor. She came with marked symptoms of exophthalmos, the goiter, the toxic symptoms, and complained about the eyes. When she first came the protrusion had been much more marked than at present. There never was a tumor and is none at present. Following ligation there was marked improvement in the general condition. It is known that ligations never cure a case and the thing now was to do something permanent. Dr. Beck believed that the tonsil was a factor in the condition and he had removed the tonsils under local anesthesia without any bad effects whatever. There was not as much bleeding as in a normal individual, and the removal was followed by good results and a gain in weight. In due time toxic symptoms developed after the ligation, the improvement being of only short duration. The removal of the tonsils, however, was done in Rochester after the thyroidectomy. Dr. Beck had asked Dr. Crile about this last summer and he believed in the importance of the tonsils in connection with the thyroids and removed the tonsils after the thyroids.

### DISCUSSION

Dr. Clarence Loeb had not seen the first case until the eye was in the process of returning to its former condition. At the time he saw it there was a definite recession of the right eye which had since returned to a complete level with the other eye, as measured by the exophthalmometer. The young lady had a most pronounced exophthalmos, so much so that it was impossible to measure it with the instrument as the cornea extended beyond the last line. He had not seen this patient until the condition was well established.

He saw the other case shortly before she was operated on for the tonsils. Neither patient presented all the typical signs of exophthalmos. In both cases there was free movement of the eyelids and there was a protrusion of the eyeball. The staring appearance of the eyes was very noticeable.

As to the irritation and paralysis of the sympathetic, he had always been taught that the exophthalmos was due to a paralysis of the sympathetic and the exophthalmos due to the irritation. At first, he was inclined to scout the new theory, but it must be remembered that although the other symptoms very frequently improve rapidly after a removal of the gland, the exophthalmos often remains. So it may be that there was a paralysis. If irritation of the sympathetic caused the exophthalmos, removal of this irritation should, theoretically, be followed by recession of the eyeball.

So far as the treatment of the exophthalmos was concerned this varied from performing Kronlein's operation to resecting the cervical sympathetic.

Dr. George F. Suker asked the members to examine these patients to help him verify a symptom he had investigated at the Cook County Hospital in a number of exophthalmic goiter cases and that was, a deficient complementary fixation in lateral rotation of the eyes.

One patient was made to look to the extreme right, with

head straight forward, and to fix a point for a second or two which was held three or four feet from the patient, and then the fixation point was rapidly swung into the median plane while the eyes were to follow it. During this rotation it was observed that the left eye properly followed the fixation point, while the right eye lagged behind and suddenly jumped into fixation with the left eye when the object reached the median plane, thus causing an apparent divergency for a moment.

Dr. Frank Brawley supported Dr. Beck's statement that the tonsillar infections played a great role in the thyroid disease. He thought those men who were seeing a good many tonsil cases very frequently saw cases where the acute thyroid irritation subsided rapidly following the removal of the tonsils, and this was particularly true where it had been determined by careful plate cultures that the streptococcus was present in the hemolytic or viridans form.

Dr. Clarence Loeb, in closing, stated that the fundus was normal in both cases. He thought the fact that winking was present prevented any irritation of the cornea as a result of the protrusion. He would certainly look for the Suker sign in all cases of exophthalmic goiter which he saw hereafter.

Dr. Harry S. Gradle asked how Dr. Beck accounted for the exophthalmos.

Dr. George F. Suker asked how Dr. Beck accounted for the fact that the pupils were always small in exophthalmic goiter.

Dr. Beck, in replying, said he believed there were certain fibers which were destroyed and others not. We knew that in the vestibular nerves there were two distinct paths for the superior canals and for the horizontal and vertical canals, and yet it was the same nerve. They also acted differently to stimulation and to the different degrees of stimulation. He thought it was possible that these fibers which had to do with the mechanism of the iris were not destroyed, whereas those which control the vessels which are behind the eyeball could be irritated or destroyed. Immediately after death the exophthalmos disappeared, and that may mean that other fibers stimulate the vaso-constrictors and each nerve in the sympathetic has those two components.

He thought that perhaps Dr. Suker was right, that when one cut both nerves the protrusion would go back but he had never seen it demonstrated.

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## THE VISUAL REQUIREMENTS OF MILITARY AVIATORS

Dr. Charles P. Small said that the advent of the aeroplane in modern military equipment had made it necessary to modify to some extent the method of physical examination of applicants. It is of the utmost importance for the aviators to possess normal functions presiding over the maintenance of bodily equilibrium under a definite set of conditions. It was of equal importance to know the ocular conditions present, not only the visual acuity but the entire ocular apparatus.

Huss (Marine-Oberstazarzt) in his recommendation for the eye examinations of flyers includes the history, objective examinations, refraction, acuteness of vision, visual field taken roughly by the hand, and pupillary reaction. Unless the subheadings "Objective Examinations" were more comprehensive than would generally be included under that term, there were a number of very important omissions in this list for the routine examination.

Visual acuity of 20/20 in each eye is, of course, of prime necessity. In the British Army the standard for general service requires, without correction, vision of 6/24 in the better eye and 6/60 in the worst eye, which must be the left. In Germany combatants are required to have correctness in vision of at least 6/12 in one eye, while in the other the correct vision may be minimal, and in the Landstrom the second eye may even be blind. In the armies of Germany, Austria, France and Italy more than six D. of myopia are allowed, but because of the constant demand upon the eyes, from the time the aviator begins his ascent until he has made a landing, a visual acuity of less than 20/20 vision in each eye might be a serious handicap. Even with normal vision in his eye, the aviator must have a normal binocular vision, as otherwise his estimation of distances, of the relative location of places and objects would be valueless, and his own safety as well as that of his machine would be in serious jeopardy when attempting to make a landing. There should also be normal muscle balance as well as good abductive and adductive power.

The presence of nystagmus should disqualify an applicant. A cycloplegic should be used in all cases, not only for determining absolute refraction, but in order to see the peripheral parts of the fundus and detect any evidences of previously existing iritis or uveitis.

One of the most important features of eye examination seems to have been altogether ignored, namely, the examination of the color sense.

The speaker thought that there should be a reexamination of the eyes at least once a year, as sensitiveness of the retina, the endurance of the eye muscle, etc., could be determined only after practical trial.

The successful applicant for army aviation service should have: 1. 20/20 uncorrected vision in each eye. 2. Binocular vision. 3. Absence of nystagmus. 4. Normal muscle balance and competent ocular muscles. 5. Normal media and fundi. 6. Normal visual fields, by perimetric examination. 7. Normal color sense.

### DISCUSSION

Dr. Wesley Hamilton Peck said there was one feature in the paper of Dr. Small which he had thought of for some time, and that was in reference to supplementing the aviator's vision by the use of photography. He thought if by the use of the latest improved cameras with rapid exposure shutters, rapid lenses and the fastest plates or films, various pictures were taken from airplanes or dirigibles, such as stereoscopic exposures which when viewed through a stereoscope would give the correct perspective, and others through telescopic lenses to give the largest possible detail of parts of the enemies camp, or moving picture exposures which could easily be projected, and 3¼ by 4¼ cameras with anastigmatic lens and regular negatives made from which could be made stereopticon lantern slides, and exhibited to the staff of army officers at headquarters at any magnification desired, much valuable aid might be rendered, as the aeroplanes have demonstrated that they are of the utmost value and indispensable in modern warfare in doing scout duty and directing the fire of artillery. The aviator is naturally fully occupied attending to his duties and many details necessarily escapes his eyes which the camera would collect and preserve for future careful study.

Dr. Clarence Loeb spoke of the requirements in the United States Service. He had been connected with the mobilization in Missouri and the standard for the line was 2—/40 or better in the right eye and 2—/50 in the left. No attempt was made to examine the fundus or test the refraction or the color sense.

Dr. Harry Gradle said that Dr. Stanton had shown him the requirements and he thought they included a high degree of

visual acuity. Dr. Gradle considered the requirements were now too low and should be raised.

Dr. Small, in closing, said in answer to Dr. Gradle's question that at present the requirements were 20/20 in each eye. He thought our service should be maintained at a very high standard. There was no provision made for the examination of the color sense. The muscles should show not only normal balance but should have good adductive and abductive power. The labyrinth was tested simply to see if there was normal reaction. Rejections were made if there was not normal reaction.

MAJOR H. WORTHINGTON,
Secretary-Treasurer.

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## CHICAGO OPHTHALMOLOGICAL SOCIETY.

A regular meeting was held, March 19, 1917, at the Hotel LaSalle, with the president, Dr. Paul Guilford, in the chair.

Dr. A. M. Carr read a paper entitled TWO CASES OF SO-CALLED ACUTE INFLAMMATORY GLAUCOMA RELIEVED BY ESERINE.

*Case 1.* A man, aged 39 years, was first seen February 8, 1917. He complained of severe pain in the left eye; there was no blurring of vision, no colored rings about lights. In the evening the left pupil was larger than the right and the pain more severe, but he slept until about four a. m. The pain then became very severe and he saw colored rings about the lights for the first time.

Examination: Left ear, general ciliary injection, conea slightly hazy, no corneal precipitates; anterior chambers both alike; iris slightly darker than right; pupil 6 mm. round and fixed to light; disc not cupped; left tension distinctly higher to fingers, the Schootz reading was 47½ mm., right 14¼ mm.; vision 1.0 plus 2 right 0.8.

Eserine salicylates one-half per cent. solution was instilled into both eyes; the tension was definitely lowered, pupils narrowed to 1 mm.

General examination: Teeth dirty, pharynx slightly congested, tonea versacolor on chest, moderate general enlargement of the lymph nodes, some hypertrophy of the left ventricle with a faint diastolic murmur at apex only; left lobe of prostate firm, some tenderness. Blood pressure systolic 126, diastolic 66. Urine negative.

Focal infection study showed positive tuberculin reaction, giving temperature of 101.4° F. with 4 mg. of old tuberculin at the 32nd hour; fluoroscopic examination of the chest negative for tuberculosis; cloudy right antrum, no pus; no pus in tonsils; strongly positive Wassermann.

Diagnosis: Acute inflammatory glaucoma in the presence of active lues.

Treatment: Miotic treatment to left eye continued for six days. The tension did not rise above 14 mm. after the second day. Eserine was then stopped to learn what would happen if the pupil was allowed to return to normal size. In the meanwhile a subcutaneous tuberculin test had been undertaken. After 48 hours, at the height of his reaction (temp. 101.4° F.) the left tension rose to 42 mm. with a pupil of but 2 mm. One-half hour thereafter both pupils were found to be widely dilated (8 mm.). One hour later despite the pushing of eserine, the left pupil remained 8 mm., right contracted to 3 mm. There was distinct arterial pulsation of left disc. During the succeeding five days no eserine was used and tension remained below 14 mm. The tuberculin test was then repeated, but no increase in tension and no dilatation of either pupil occurred.

The visual fields were of special interest on this case, particularly those of the right eye. They showed the form found in primary optic nerve atrophy rather than the nasal limitation found in glaucoma.

*Case 2.* A man, aged 33, was seen on November 1, 1916, at 8 p. m., complaining of severe pain in his right eye, nausea and vomiting.

Previous history: Struck in the right eye with fist 5 months before. October 27, 1916, he came to the hospital for refraction. Diagnosis: Probably rupture of the choroid. Atropin was prescribed for the fellow eye for refraction. Gonorrhea eleven years ago; hard chancre three years ago, continuous treatment since. Heavy drinker until three years ago, smokes excessively.

Examination: November 1, 1916. Right eye, complete ciliary injection, some chemosis, cornea slightly hazy, pupil virtually oval 5x6 mm. sluggish in reaction; iris slightly greenish-yellow; anterior chamber very shallow; tension distinctly elevated to the fingers, and Schiotz 52¼ mm. Left tension 14¼ mm., pupil 6½ mm. Patient stated positively that he did not put atropin in his right eye. Eserine salicylate one-half per cent. solution was instilled into the right eye. The pain was relieved and vomiting stopped.

General examination: Left inferior turbinate enlarged; deviation of the nasal septum to left; mucous polyp in right nares; general enlargement of lymph nodes; blood pressure systolic 160 mm., diastolic 110 mm.; urine negative.

Under eserine the next morning the right pupil was 1½ mm., tension 8½ mm.; cornea almost clear; almost an anterior chamber; plus ciliary injection and chemosis; right vision 12/200.

The next day tension of the right eye was 7¼ mm. Holocain dilated the pupil to 6 mm., but gave absolutely no rise in tension and contracted again readily after eserine.

### DISCUSSION.

DR. E. V. L. BROWN said that in view of the temporal limitation of both visual fields in the first case and the positive blood and spinal fluid tests he would consider it to be one of early primary atrophy of the type found in tabes and the acute inflammatory glaucoma to be an independent phenomena.

In the second case he thought it quite possible the patient got some of the atropin into the eye which became glaucomatous.

DR. WILLIAM H. WILDER asked Dr. Brown what his conception was of the way in which atropin might produce attacks of glaucoma and whether he had any idea that it might produce it in any other than a mechanical way which would be explained by the Weber-Knies theory. He said that as he remembered the record there was a large pupil when this attack occurred and the relation that that bore to the production of the glaucoma was interesting. He also asked what was the relation of the physiological cup to the rest of the optic disc—was it entirely on the nasal side?

DR. E. V. L. BROWN said that when the second attack occurred in the first case during the use of tuberculin no atropin had been used for two days; there was a temperature and when

the tension was taken it was 42 and some hours afterward the pupil had enlarged to 6 mm. The tension had been down to 7 or 8 and he thought it was the tuberculin that caused the change. He said the Knies-Weber theory appealed to him very strongly and he thought the glaucoma might be produced by instillation into the eye and secondarily by the systemic effect by dilating the pupil, in which case he thought there was a mechanical effect. The second time they did not get the glaucoma; the tension was kept down for five days and then 3 mg. of tuberculin was used. There was a temperature of 103 degrees F. but no dilatation of the pupil, the tension remained down and the eye had shown no further tendency toward a glaucomatous condition. They then dilated the pupil with atropin and got no tension. He said that in many cases of primary glaucoma there was a fever right along, and in many cases where one eye was involved and the other eye not involved the visual fields were taken and there was limitation of the temporal field. He thought the other case should be studied with regard to the primary optic atrophy of tabes. He said they had watched the case carefully and the cup was not on the nasal side. In one case they had atropin in the other eye and got an infection, and he had seen cases in which the cups were small.

Dr. Harry Gradle was reminded of the case of a middle aged woman with a large family who came in for refraction in 1899. She returned in 1903 with a glaucoma simplex with a shallow excavation which extended almost to the edge of the disc. In 1907 his father did an iridectomy on each eye, which kept the tension down; the vision gradually decreased and the disc became paler. In 1911 she complained of various vague pains in the limbs and Dr. Grinker reported a well developed tabes, which explained the lowering of the vision with the atrophy of the disc without any tension. The pupillary reaction was out of the question. Since that time her vision has remained about stationary. She had the temporal limitation of the fields, which started early, before the iridectomy was performed.

Dr. Robert Von Der Heydt said he had recently seen a patient with a third nerve paresis in whom the dilated pupil brought on mechanically an acute attack of glaucoma. He thought the origin of the acute attack of glaucoma was interesting, as it was the result of dilatation of the pupil in a syphilitic constitutionally predisposed to glaucoma.

Dr. Charles F. Burkhardt, of Effingham, Ill., was much interested in the report of these two cases because he had been treating a similar patient at long intervals for the past five years. The patient, aged 58 years, has acute attacks of glaucoma in the left eye which last, as a rule, about 6 or 7 days, and he has been able to get fairly good results and get the condition cleared up by the use of ⅓ of 1 per cent. of eserine. He said he had on several occasions suggested that perhaps a iridectomy would be the best thing, but the patient would not submit to it.

Dr. George F. Suker thought it was interesting to find that the man was syphilitic and the mere fact that he had a limitation in the temporal field was significant of the fact that he had what might be called the highest type of tabes and therefore the glaucoma which he had was one just as Dr. Brown had attempted to explain. He thought it could be demonstrated that the patient was entirely well of the glaucoma, but if the case was watched further it would be seen that the retraction of the visual field would extend to the nasal side and then there would be a uniform concentric contraction which was typical of tabes or a perineuritis. He thought he would not ascribe the glaucoma symptoms as a whole to syphilis or its toxin and advised heroic antisyphilitic treatment, particularly large doses of salvarsan followed by mercury, but no potassium iodid. Syphilis *per se* has not up to the present time been considered as an etiologic factor for glaucoma. One would not want to deny the possibility, but the probability is certainly an extremely doubtful one even in the face of the bizarre activities of syphilis.

## TWO CASES OF SYMPATHETIC OPHTHALMIA WITH ANATOMIC FINDINGS.

Dr. E. V. L. Brown reported these cases as follows:

*Case 1.* Sympathetic Ophthalmia with Whitening of the Lashes: S. Davis, aged 16. The left eye suffered a penetrating steel wound in April, 1916, and was operated for traumatic cataract 7 weeks later. Sympathetic inflammation developed in the fellow eye in the eleventh week and enucleation was performed in the sixteenth week. Examination in the seventh month showed a sympathetic iridocyclitis with precipitates, thickened and vascularized iris and dense pupil membrane, with secondary glaucoma. A large number of the lashes of all four lids became dead white early in the disease. The tension gradually declined. The tonsils were removed and Hg. rubs and benzosalin used for 5 months with effect. Sections of the primary eye showed the typical findings.

*Case 2.* Sympathetic Iridocyclitis and Choroiditis with Preservation of Useful Vision in the Sympathizing Eye.—T. Irving, aged 32. The left eye had a recurrent leutic iridocyclitis with secondary glaucoma, for which a trephining was done in November, 1912. About 30 months later vision became blurred in the fellow eye and in the thirty-fourth month both eyes showed the type of uveitis most frequently found in sympathetic disease, viz.: thickened tumified irides with precipitates. There was a rich net of new formed vessels on the primary iris. The enucleated primary eye showed the typical changes. Mercury and benzosalin were also used in this case and a tuberculin course given. Marked improvement did not occur, however, until infected tonsils were removed, when vision cleared to 4/10 and has remained this acute for 14 months. Innumerable round and slightly irregular discrete and confluent yellowish flecks are now to be seen in the equatorial and anterior choroidea, especially below. None of them are definitely white, indicating that the choroidea is nowhere atrophic through all its layers. Only moderate pigmentation is present.

Dr. Charles C. Darling read a paper entitled REPORT OF TWO CLINICAL CASES OF SYMPATHETIC OPHTHALMIA.

*Case 1.* J. J., first seen November, 1916. He had been hit seven years previously with an iron bolt which ruptured the right eyeball; the eye became quiet after four months, but would become red and painful at times. Two months previously the left eye began to fail and two weeks previously sight, he could not see to read.

Examination: Right eyeball atrophic; slight ciliary injection, no light perception. Left eye, photophobia, lacrimation, slight ciliary injection; numerous very fine deposits on Decemets membrane. Aqueous cloudy, iris greenish in color; pupil sluggish, dilated fully on the use of atropin; some pigment spots on anterior capsule.

Treatment: The blind stump was at once removed and treatment begun with atropin, dionin, inunctions of mercury, sodium salicylates, sweats and hot applications to eye. The sight steadily improved so by the end of December it was 20/50. Vision now 20/20 with a plus 200 Cyl. Sections of the enucleated eye show a degenerated eyeball with bone formation; nothing typical of sympathetic; possibility such a change

may be shown on examination of other parts of globe.

*Case 2.* J. K., seen October 26, 1916. There was a history of inflammation in the right eye for the past two months; no history of injury.

Examination: Photophobia and lacrimation. R. E. slight ciliary injection; corea clear; iris greenish; pupil small, no reaction to light. R. V. 20/200. L. E., marked ciliary injection; cornea cloudy; a black spot showing where there had been a perforation of cornea with adherent iris root. Lens dislocated forward. L. V., light perception faintly; no projection. X-ray examination, no foreign body. Tonsils showed pus in both. Wasserman, tubercular test, 10 mm. N. R. all negative; no leukocytosis.

Treatment: Left eye was removed. Right pupil dilated, 2 per cent. atropin and cocain. Inunctions of mercury, sodium salicylate, atropin, removal of tonsils, after which sight improved, reached 20/70 falling again to 20/200 five days later.

New vessels seen in iris December 11. Vision gradually fell, fingers January 6 at one-half foot. The eye that was removed shows typical picture of sympathetic in all parts of the choroid.

Two points of interest in this case are the sympathetic inflammation as the result of a small perforating ulcer of the cornea and the absence of a keratitis punctata in the sympathizing eye until late in the course of the disease.

### DISCUSSION OF PAPERS OF DRS. BROWN AND DARLING.

Dr. George A. Darmar cited a case which occurred last year in his practice. He said that in May, 1916, a man struck himself in the face with the end of a wrench, breaking his spectacles. A fragment of glass cut him in the right cornea, the incision extending from about the center to the edge of the cornea. The wound healed without complications, but four months to the day after the injury he noticed sympathetic irritation in the other eye. This increased and two days later Dr. Harry Gradle saw the case in consultation and advised immediate ennucleation of the eye, which was done. Four days later the patient became nervous and irritable; he was naturally a very quiet man, but the nervousness increased for forty-eight hours, when he became violently insane and, although he was a man of exemplary habits and clean speech for thirty-six hours, there was a constant stream of profanity and obscenity. At the end of this time he slept for about six hours and awoke in an exhausted state with very little recollection of what occurred. He said he had looked up the literature and found that he was an almost typical case of postoperative psychosis, which Krafft Ebbing had described, but which more frequently occurs in women following childbirth, although they are frequently seen following operations on the eye or genitalia. He stated that the patient was now practically well with vision 20/20 plus in the remaining eye.

Dr. William H. Wilder said one point which struck him as Dr. Brown was describing his case of increased tension in the course of the sympathetic ophthalmia was the question of operation, and he was interested to know that he had shown his great sagacity in refraining from operation even though it seemed to be indicated. He thought that was a point which was well worth considering in connection with any case of sympathetic ophthalmia in any stage, for the reason that the inexperienced ophthalmologist who had not seen a number of these cases through long periods of time might easily be tempted too early to resort to operative interference. If there was any one thing in connection with the treatment of these important cases which should be emphasized it was to absolutely refrain from operative interference even months and months after the subsidence of the last symptom. He thought the most that might be done would be paracentosis, which might be accomplished with safety, but if there was anything brought home to him in the treatment of this disease it was that one should not jump in "where angels fear to tread." He was convinced that no operation should be attempted so far as restoration of the vision was concerned if poor vision had resulted two or three years after the subsidence of all symptoms.

Dr. Wilder considered Dr. Darling's case interesting in showing how a comparatively simple injury might be instrumental in bringing on this disease, but he thought that such cases following perforating ulcer of the cornea were rare.

Dr. E. V. L. Brown, in closing, said he was glad to learn that Dr. Wilder too was opposed to operation on sympathizing eyes. He cited two further cases in which operations for tension had caused only an aggravation of conditions.

Dr. Charles G. Darling, in closing, stated that the precipitates on Decemet's membrane first occurred thirteen days after the patient entered the hospital. He had always thought that finding the precipitates on the posterior wall of the cornea was one of the first signs of the beginning of sympathetic ophthalmia, but in this case the precipitates did not appear until the eye had been inflamed for over a month.

## PRELIMINARY REPORT ON SEVERAL CASES OF LATERAL VENTRICLE INJECTIONS OF MERCURY FOR THE OPTIC ATROPHY IN TABES AND GENERAL PARESIS.

Dr. George F. Suker thought it was necessary to reconstruct the generally accepted conception of so-called primary tabetic optic atrophy in so far as the process of atrophy is not an ascending one, originating in the retina and then proceeding into the nerve, but that it virtually is a typic secondary optic atrophy, starting as a neuritic process somewhere in the nerve and then descending to the disc. He stated that up to the present time every form of treatment of the atrophic process had been an utter failure; that experimentally on the lower animals it had been conclusively proven that intraspinal injections never reach the optic nerve to be of any intrinsic merit in treating optic nerve lesions, but that the subarachnoid or intraventricular injection had been proven experimentally to reach the optic nerve, and had given up to date the most promising results, it having been shown by numerous cases that repeated injections could be made into the arachnoid spaces without entailing untoward after effects, provided the injections were made with good judgment. He said the number of cases treated up to the present time was not sufficiently large to warrant the dictum that it is the sine qua non method, but he considered it a method worthy of further trial in selected cases. He reported seven cases which he had treated by this method, and exhibited photographs showing the method of procedure. Each of the cases had had a series of five to six injections, ranging from 1/100 to 1/20 grain of bichloride; the interval between injections varied from ten to fourteen days, and two had been at intervals of one month. All cases were treated, in addition, with mercurial rubs and iodides. From 5 to 40 c.c. of ventricular fluid were abstracted and one-half the amount, with the addition of the bichloride, was slowly reinjected into the ventricle. The first injection was made under general anesthesia and the subsequent ones under local. They were always made on the right side of the brain into the right lateral ventricle, so as to damage as little as possible any of the functionating brain centers. He

emphasized the fact that care should be exercised not to pass the needle through any of the dural vessels. He said if the ventricle was not reached upon the first insertion of the needle, the same with obturator in, has been raised and lowered, each time withdrawing the fluid with syringe, but to wait several days or a week before attempting the insertion again, in this way avoiding undue traumatization of the brain tissue and thwarting cortical and subcortical irritation. He stated that blood-stained serum must not be reinjected with the mercury, as it was certain to invite trouble, but that so far all annoying symptoms which had appeared subsequent to the injection have never remained permanent nor continued longer than three weeks. Caution must be observed when the serum is reinjected to have the inserted needle filled with fluid, so that it drips, in order not to force air into any of the ventricles.

MAJOR H. WORTHINGTON, M. D.,
Secretary-Treasurer.

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## THE CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

The regular monthly meeting of the Chicago Laryngological and Otological Society was held on Tuesday evening, March 20, 1917, at 7:30, in the rooms of the Graduate School of Medicine.

The president, Dr. Stanton A. Friedberg, in the chair.

### *Presentation of Cases*

Dr. Elmer L. Kenyon presented a young man who had possessed a falsetto voice, but whose voice was now normal.

The patient had been presented two or three months previously and was shown again to demonstrate the great improvement in the condition.

Dr. Kenyon also presented a young man who had been a stammerer since he was a young child, his father having also been a stammerer. He was twenty-six years old and had previously made six efforts to be cured. He came to Chicago on December 14 and went home February 1 under complete control. Dr. Kenyon said he was not "cured"—no stammerer was ever cured in three months—but he had control over his speech, which, if kept up long enough, would ultimately result in cure.

Dr. Kenyon said that stammering schools which advertise so extensively practically all "guarantee" a cure in six weeks, but in the very nature of the disorder was absolutely impossible in so brief a time, unless it happened that the stammerer was just on the point of spontaneous recovery. However, it was often possible for the stammerer to gain a capability of control in a less period of time. The patient talked under perfect control, explaining that four months treatment under psycho-analysis had resulted in absolutely no benefit. He had stammered worse at the end than at the beginning of that treatment.

Dr. Joseph Beck presented a case of "carcinoma of the larynx," and showed the specimen and microscopic section.

Dr. Beck thought one of the interesting points about it was that the patient was under treatment by x-ray for two years, and was apparently cured by that method of treatment. The specimen showed that it was quite a large growth and required a laryngectomy. The point he wished to make about the after-care was in reference to the voice as a question of an artificial larynx. He had left an opening in the subhyoid region which he thought would ultimately be lined with mucous membrane and would allow the upper part of the artificial larynx to be introduced behind the tongue and the other end into the trachea. He had introduced a rubber tube in that way and the patient could speak so that he could be understood across the room, and at the same time he could breathe through it freely. He intended to consult Dr. Kenyon about producing the artificial voice as soon as the patient reached the proper stage. Most cases who had an artificial larynx inserted into the trachea had found them unsatisfactory and had discarded them. Someone had devised an artificial larynx in which one end fitted into the trachea and along the side of the lower jar and side of face into the nose and back into the nasopharynx, and in that way the patient got a voice. That apparatus was the best known at present.

Dr. Beck also presented a case of "sarcoma of the larynx," showing the results of radium in large doses.

The patient had had two tracheotomies. He had a rapidly growing tumor, for which he had a thyrotomy with the burning process of Percy's method, cleaning out the whole anterior portion of the larynx. There was a recurrence with great sloughing from the burn. This had been followed with large doses of radium. Dr. Beck thought the profession was very fortunate in having in Chicago an institution where they could have the use of such large doses of radium. The rapidity with which the sarcoma melted away under this treatment was marvelous.

Dr. Beck had expected to present another case of "sarcoma of the hard palate," but the patient did not come. He showed some stereoscopic photographs of the case. The points of interest were the rapid disappearance of a tumor the size of a lima bean and the occurrence of a severe burn of the tongue and palate. The amounts of radium used were 125 mgs. for twenty-four hours in eight-hour periods. In the laryngeal sarcoma the patient had 75 mgs. for thirty-six hours in twelve-hour intervals.

Dr. Elmer L. Kenyon thought Dr. Beck's scheme for producing the voice was very ingenious and likely to bring about excellent results. He thought it was true that patients with carcinoma who had had a laryngectomy and had used a laryngeal tube of the old type soon discontinued its use, but that a certain amount of them with patience and perseverance could develop a voice of low carrying power, and some of them occasionally were able to develop a comparatively large voice.

*Scientific Program*

Dr. George W. Boot read a paper entitled

## HEMORRHAGIC MASTOIDITIS

The first case was that of a patient aged seventy-eight, who was operated on January 7 at the Evanston Hospital, under local anesthesia, using one per cent. novocain plus adrenalin chloride. This was done on account of the patient's age and kidney condition. All the mastoid cells were found filled with dark clots; the mastoid was large and very cellular; all the cells, including the antrum, were opened. Only traces of pus were found in the antrum; the sinus was not exposed. The wound was packed with iodoform gauze and partly closed with clips. The patient's condition at the close of the operation was excellent, and he sat up and called for something to eat and drink. There was very little bleeding during the operation. On January 8, the 10:00 a. m. temperature was 101.8° F., pulse 96, leukocyte count 26,500; at 10:00 p. m., the temperature was 103° F., and there was a red and edematous area around the wound. On January 10 a well-marked facial erysipelas was present. Ten c.c. of Mulford's antistreptococcus serum was given and the erysipelas disappeared; the erythematous area was painted with tincture of iodine. The patient later developed cellulitis of the left leg, multiple abscesses, and on February 1 developed a second attack of facial erysipelas and died the morning of February 2.

Case two was a patient in the service of Dr. Joseph Beck in the Cook County Hospital. The patient was a man aged twenty-seven, whose illness began about the first of November. He was admitted to the hospital on December 16, complaining of pain below both knees, in the region of the right hip, and in the chest and shoulder. He claimed he had never been sick, but gave a history of gonorrhea seven or eight years ago, and a sore which a doctor called a soft chancre eight or nine months ago. At the time of admittance the scalp, ears and nose were negative; the pharnyx was infected and the tonsils enlarged; the post cervical glands were enlarged, chest normal. There was tenderness to the right of the umbilicus, over the gallbladder and in the right lumbar region; also over the left ilium and behind the left hip joint. There was a slight nodular swelling over the heads of both tibias, where crepitus could be felt. Blood pressure systolic 118, diastolic 80. Wassermann reaction 4 plus positive. A diagnosis of luetic periostitis and pleuritis was made. On November 28 the left membrana tympani was red and bulging. Paracentesis revealed much pus. Shortly afterward the patient began to moan and seemed to lose consciousness, but an hour later was better and did not remember the attack. The following day there was foul discharge from the left ear and tenderness over mastoid. December 1 the patient was in constant pain and left mastoid tenderness was extreme, but no edema or bulging present; the ear was draining freely. A mastoid operation was done and the mastoid found to be large with numerous cells of moderate size which were all filled with very dark red, almost black, blood clots. There was a small amount of pus in the antrum and some in the larger cells. Cultures from the mastoid pus gave a streptococcus. The patient made an uneventful recovery and was discharged from the hospital on January 3.

Dr. Boot said he had found only one case of hemorrhagic mastoiditis reported in the literature; a case reported by Loeb in 1915. The conditions in the three cases were much alike. The onset was severe, the discharge was a bloody serum and profuse; the mastoid tenderness was very marked, the temperature was moderate. There was a considerable leukocytosis and all gave the streptococcus in smears. The speaker thought a probable point in differential diagnosis was found in that the x-ray plates in Dr. Beck's case showed very little change from the normal, while transillumination in Dr. Boot's case gave a marked shadow. He believed if both transillumination and x-ray examination were done on the same patient it would probably be possible to make a diagnosis in advance of operation. He thought that ordinarily streptococcus infections require earlier operative interference than other types of infection, because of the greater amount of destruction done by the streptococcus; on the other hand, the liability of the soft part to develop erysipelas and cellulitis must be borne in mind, particularly in patients who have chronic nephritis.

### DISCUSSION

Dr. Joseph Beck said his case that Dr. Boot reported gave none of the classical symptoms or indications for a mastoid operation except the fact of the brain symptoms, which made him decide to operate even as late as he did. He thought Dr. H. W. Loeb had reported two cases instead of one and in the other case his bacteriological examination disclosed the diplococcus. He did not know that a bacteriological examination had been made and a definite result obtained in his case, but remembered that they had made cultures at the time of opening the mastoid. He thought the x-rays were of more value than the transillumination, as they were not obstructed by the blood clots. He said he had sectioned the bone in this case and the histologic examination showed that it was not an osteophlebitis septica of the mastoid, because the bone was not affected. The pathology was a great deal like the mastoid in which the cells are filled up with material which pulsates and bleeds very easily.

Dr. J. Holinger said that with good reason hemorrhagic inflammations are considered severe. Hemorrhagic mastoiditis is not frequent, and he cited his observation of a patient with pronounced labyrinth symptoms in whom on operation be found the middle ear and antrum filled with tightly adherent blood clots. Sleeplessness, severe headache and lack of relief from large doses of morphine suggested the possibility of meningitis. The patient made a slow recovery.

Dr. A. S. Rochester said that within the last few hours he had operated on a case which presented some features which were of interest in connection with this paper. The patient had had a cold in the head four days previously, used a nasal douche, and within a few hours developed an acute pain in both ears. The drum membranes were bulging and a paracentesis was done on both sides; on the left there was a bloody, serous discharge; on the right a slightly bloody discharge, the blood soon clearing up. At operation the left mastoid bled profusely, the cells were broken down and filled with very bloody granulations and pus; on the right side there was very little bleeding, the cells were broken down and filled with yellowish pus, but very little blood.

Dr. Charles H. Long thought a number of such cases would

be found if they were looked for more carefully. In working in the laboratory he had found two or three cases, but knew nothing of the history.

Dr. Joseph Beck, in answer to Dr. Long, said that Wingrave had shown post mortem changes in the sinus as well as in the mastoids, the same as Dr. Long had found.

Dr. Boot, closing, disagreed with Dr. Beck about what Dr. Loeb reported; he said Loeb distinctly called the organism a diplo-streptococcus. He thought there was a close relation between these cases and pneumonia, and the fact that the exudate in the cells was a fibrinous affair, not serous, and the fact that there was very little bleeding was interesting. He believed it was a distinct type of mastoid and not very common.

Dr. Arthur M. Corwin read a paper entitled

## HEMORRHAGE IN RHINO-LARYNGOLOGICAL WORK

Dr. Corwin said that, leaving out of account the uterus, perhaps the nose is responsible for more spontaneous loss of blood than any other region of the body, and bears its full share of accidental and operative hemorrhage as well. This brief paper does not aim to summarize all the data suggested by the title. It is not uncommon for physicians, even laryngologists, to apply the word bleeder or hemophiliac in a loose way, to describe the episode of vicious epistaxis, or severe, possibly fatal, post-operative hemorrhage, marked by prolonged bleeding time and delayed coagulation, but without adequate grounds for such a diagnosis. "Hemophiliac" applies to a distinct type. Purpura, whether simple or hemorrhagic, is merely a symptom complex resulting from toxemia of a wide variety with no single pathologic foundation. Rhino-laryngological hemorrhage purpuric in character is an incidence in scurvy, phosphorus or snake venom poisoning, the grave cachexias, leukemia and anemia and bacterial infections of many kinds. To differentiate these purpuric types of hemorrhage heredity is wanting, except in rare instances; in most cases they are individual bleeders, not hemophiliacs; they frequently show various grades of blood change, and there is fatty degeneration of the capillary walls. But the blood frequently clots in normal times. In any case, the diminished clotting is nothing like as marked as in hemophilia; the blood platelets are also apt to be diminished. The varices at the base of the tongue are rarely the site of hemorrhage, and yet their rupture may give extreme anxiety to both patient and physician unless identified.

Hemophilia proper is not common in America, and is said to occur twice as frequently in Germany as elsewhere. In fact, we as a profession have not learned much more about the hemorrhagic diathesis than we were taught as students. While we were taught that it was the female who always transmitted the tendency or potentiality, we have more recently learned that she hands it invariably to a male and is herself unaffected. No female is a hemophiliac. Though Virchow, and indeed earlier investigation, led us to believe that there was in hemophilia some peculiar change in the vessel wall, a greater thinness and fragility, evidence has disproved this—or, at least, none has confirmed it.

The real bleeder diagnosis, then, is summed up in:

1. Definite heredity, through unaffected females. (Law of Nasse.)
2. Prolonged bleeding time.
3. Coagulability markedly diminished.
4. Normal blood picture except leucopenia of anything. Blood platelets not diminished, as some have reported.
5. Origin in early youth.

We know physiologically that blood clotting is accelerated by raising the temperature and retarded by lowering the temperature, and yet we slap on ice bags following tonsillectomy—presumably for their reflex effect upon vasomotor constriction. But hot pledgets, not too hot, inserted directly into the wound will act as magically to check hemorrhage in the throat as in other surgical fields.

According to laboratory reports, blood clotting is stimulated by the administration of an anesthetic, a point perhaps in favor of the good old ether anesthetic vs. local anesthesia. On the other hand, addition of carbon dioxide and withdrawal of oxygen lessens the tendency to clotting. When the gas-oxygen anesthetic is administered by an expert, using an up-to-date device, there is no anesthetic to compare with it in tonsil surgery. The physiological laboratory demonstrates that blood received in an oil-lined receptacle under an oil film clots slowly. This principle applied in the use of short gauze strips boiled in vaseline at the time of operation gives support to tissue, a clean surgical dressing, with less irritation than dry gauze or sponges.

It is a familiar fact experimentally that calcium salts added to drawn blood stimulates coagulation, but this is not borne out clinically when administered internally. Applied to the wound upon pledgets soaked in one or two per cent., as advised by Keen of Philadelphia, chloride of calcium is of distinct benefit in checking and preventing hemorrhage. Adrenalin internally is reported to be inert by some as a raiser of blood pressure; it seems to be contraindicated except for the local effect, but in our appreciation of adrenalin we err too often in using it too concentrated. A 1:1000 solution produces a powerful contraction and quite as radical relaxation afterward, as action and reaction are apt to correspond. The strength of 1/4 or 1/10, the commercial solution, will give better results.

The most useful of all means by which we overcome pathological hemorrhage is the knowledge that blood serum or, under proper circumstances, whole blood, introduced into the circulation stimulates clotting as it does in drawn blood. We know that animal serum injected into a seemingly hopeless hemophiliac will usually save the patient. It will act as well in many cases of purpura and other little understood hemorrhagic types. Though rabbit, beef, horse and human serum produces like beneficial effect, heterologous serums are inferior to human serum in some essentials. Blood serum from one of the same family is prefer-

able because of the great danger of hemophilia if unrelated human serum or heterologous serum is used. Fresh normal human blood serum is obtained precisely as in making a Wassermann. Twenty to forty c.c. repeated in eight to twenty-four hours is safe dosage, unless anaphylactic symptoms contraindicate. Coagulose applied dry or in solution has proven exceedingly reliable in epistaxis, after adenoid removal, in tonsillar hemorrhage and in simple obstinate cases of bleeding after a tooth extraction. The speaker had had little experience with coagulin. He had not used the coagulation test invariably and had, fortunately, never lost a case from hemorrhage. He had used Parke-Davis ampules of pituitrin in a large number of tonsil cases with satisfaction.

He believed no laryngologist could allow a patient to die of hemorrhage without resorting to transfusion, if there is time, despite the dangers of infection, thrombosis, emboli and hemolysis.

DISCUSSION

Dr. J. Holinger said there was a great difference between a bleeder and a hemophiliac. Hemophilia is a well-characterized hereditary disease. Dr. Fonio, in Kocher's clinic, found that its pathology consisted of a scarcity of blood platelets, which is the cause of slow and incomplete coagulation of the blood in these people. He isolated the blood platelets and treated them in such a manner that they would not decompose and the Swiss firm of Ciba put the product on the market under the name of "Coagulen." Dr. Holinger had used this in powder form and in solution and found that it stopped parenchymatous hemorrhages and small spurters.

Dr. George W. Boot said that in cases of hemorrhage with a high blood pressure he thought it was a good plan to give the patient an injection of nitroglycerine to lower it. The test of the blood for coagulation was very simple; all that was necessary was a wire with several little loops in it. The successive loops containing blood could be dipped into water at half minute intervals until at the end of five minutes it was possible to tell whether the blood would coagulate promptly.

Dr. Charles M. Robertson believed the so-called hemophiliac was one in which the condition of the blood was the result of some infection and changed with conditions of the patient at different times. He thought the cases which were bleeders from birth might inherit this habit, but even those might be cases which were infected in utero, in which case they may overcome the condition. He called attention to the fact that Dr. Lespinasse had operated on fifty cases under one year of age by means of blood transfusion by the direct method and had stopped the bleeding and saved the children. In operating on the nose in many instances the patient would not respond to applications of adrenalin and at a later period the effect would be good. He considered that an indication that the patient in the first instance was in the throes of an infection and that when his condition improved the coagulability of the blood assumed a normal condition. No doubt there were a few who were true hemophiliacs, but even in these cases they must eliminate the condition of the blood which might be produced by a chronic infection.

Dr. Harry Kahn believed the time of coagulation, seven, three, or ten minutes, depended upon the method and that each method must be standardized. The simplest was to take the watch, puncture the lobe of the ear, put a drop on the watch crystal, and then, with a round needle (so as not to cut up the blood platelets or corpuscles), wait until you could draw out a thread of fibrin. This usually occurred in three minutes. Cases showing a coagulation time of more than ten minutes should not be operated until the coagulation time is reduced to normal limits.

Dr. Harold I. Lillie said that the research laboratories of Leland Stanford had shown that calcium lactate administered preoperatively in a good many cases is ineffective except in the condition of chronic jaundice, in which the calcium was firmly bound, when it did increase the coagulability. They had also shown that sera more than a month old was ineffective; it must be fresh. Human serum is much more efficient than animal. The whole blood could be administered much quicker than to wait for the serum. He called attention to a report from Budapest of thirty-five cases of spontaneous hemorrhage in children occurring without any definite clinical sign, in which cultures from the nose showed pure diphtheritic bacilli. The cases cleared up promptly with massive doses of antitoxin. He had seen a similar case recently in which the only symptom was nose bleed; the patient was given 30,000 units of antitoxin and in three days a double otitis media developed. Incision of the ear produced a very thin pus, which was also shown to contain the typical diphtheria bacillus. This cleared up in four days.

Dr. Joseph Beck said he had been carefully watching for a clear case of hemophilia from the point of history, but had never encountered one. He was sure that in taking histories the question of bleeding was frequently overlooked and it should be gone into more carefully. There was types of hemorrhage in which adrenalin was of specific, especially in hemorrhage of the eyes and nasal and skin bleeding in the new-born. Dr. Beck was sure adrenalin must have an effect, probably from its compensatory action, and thought this point should be made in exception to the statement that it was ineffectual. In cases where the diphtheria bacillus was found and antitoxin was given one had a right to believe that it was the antitoxin that stopped the bleeding, but he believed the serum in the antitoxin was also of value in this respect. He cited a case of Shoenlein's disease where the patient had lived for a year with hemorrhages, which were best controlled with placental blood locally applied. She afterward went to Europe, where she received gigantic doses of radium solution by injection, which stopped the bleeding almost instantly no matter where it occurred.

Dr. Corwin, closing, said he thought it was possible for a true hemophiliac to outgrow the condition if they were kept alive long enough. He thought very little was understood about the condition; the blood picture was largely normal, but the clotting time was far below normal, but the platelets, according to many authorities, are not reduced as they are in purpuric conditions. While nitroglycerine might be used to lower the blood pressure, pituitrin would do the same thing, although commonly supposed to raise it. When Dr. Robertson said the disease was something hereditary he was wide of the mark, for it was *always* hereditary—more than any other disease known. He thought the points brought out by Dr. Lillie and Dr. Beck were excellent and believed the history of heredity and the personal history should always be considered.

He said the point of the paper was to bring out the sharp distinction as between a condition which was always hereditary and one with a practically normal blood picture but greatly delayed coagulation, and all the other purpuric, conglomerate forms of hemorrhage which are present today and absent tomorrow, and which have no place in the classification of hemophilia.

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## CHICAGO OPHTHALMOLOGICAL SOCIETY.

A regular meeting was held April 16, 1917, with the president, Dr. Paul Guilford, in the chair.

### OCULAR DISTURBANCES IN PREGNANCY.

Dr. Burton Chance, of Philadelphia, by invitation, reviewed the subject of disturbance of the sight and disease of the ocular structures arising in the course of pregnancy, and he pointed out how certain are indicative of the gravest danger either to the life of

the woman, or portend the destruction of her sight. Such disturbances, he said, might arise from many causes, but the conditions chiefly considered by him were the affections of the retina, choroid and optic nerve arising in the course of the toxemia of pregnancy, wherein there is retinochoroiditis accompanied by exudation and hemorrhage. This form of retinitis must not be considered to be albuminuric in the sense that it is dependent upon the same process which produces an acute nephritis. In this connection, it is well to remember that ordinary chronic nephritis might be present before the first pregnancy, and the further fact, that actual renal retinitis may develop during the course of pregnancy. Undoubtedly, the retinitis depends upon disturbances in the kidneys, but the proximate cause of which is the toxemia which brought about the disturbance. The nephritis is not a true acute inflammation, but rather a fatty degeneration of the tubal epithelium which in favorable cases is replaced by healthy cells. In the less favorable a chronic nephritis may ensue with increased rapidity. The epithelium of the kidneys of the pregnant is sensitive to toxins, and it is this sensitiveness, perhaps, which causes the albuminuria while more pronounced disturbances might cause severe nephritis.

The ophthalmoscopic signs may not differ from those observed accompanying other forms of nephritis. In general terms there is a widespread neuro-retinitis with exudation and hemorrhage. The retinitis is toxic rather than vascular in origin, although endarteritis has been found. In the vast majority of cases, however, the findings are such as to allow us to suppose that the changes throughout the system are of a temporary nature. Few eclamptic cases show evidences of retinitis and the star figures are rarely found.

Acidosis from imperfect hepatic action is commonly associated with the toxemia. Its exact relation is not definitely established, although it is a well known clinical fact that when acidosis is corrected the general symptoms are relieved.

The onset of the symptoms is relatively prolonged; the disturbances of sight may vary from absolute blindness to temporary obscurations direct and peripheral. The prognosis in pregnancy is usually better than in the nonpregnant state, but it depends upon the location of the lesion and whether or not pregnancy can be terminated.

In general, it may be said, that retinal hemorrhages usually indicate a grave toxemia. If the hemorrhages are over the macula, and if the optic nerve is involved, while the symptoms are not heeded, during which time the toxemia becomes increased, a permanent impairment of vision is inevitable.

The prognosis as regards sight in these cases is probably not so good as is commonly thought, though as regards life it is much better than in the nephritis of the nonpregnant. Sight, however, never improves until the pregnancy is terminated. The ophthalmoscopic examination, when positive, enables one to make an early diagnosis of the underlying condition, which is sometimes by other methods difficult or impossible. Cases which go on to term show the largest proportion of deaths and the greatest damage to sight. Spontaneous premature delivery shows 11 per cent. of deaths, while, after artificial delivery, the mortality is but four per cent.

In conclusion, the speaker made a plea for the early examination of the eyes of all pregnant women, with the assurance that such attention should help to reduce the mortalities among them and prevent the development of disease in so vital an organ as the eye.

## DISCUSSION.

Dr. Charles E. Paddock stated that rarely does an obstetrician see a case of blindness, amblyopia or albuminuric retinitis seen in the pre-eclampsia state. He differed with the essayist, saying that there are other symptoms before the eye symptom and thought it was only in the neglected cases that the eye symptoms most frequently appear. Pregnancy has been called a disease of nine months duration—conditions are constantly arising which lead us to call it a disease—and of course the eye is not immune. The early nausea and vomiting are often accompanied by certain eye symptoms which are disagreeable to the patient, but which pass away with cessation of the so-called physiologic state.

Dr. Paddock recalled more than one case in the 6 months of pregnancy where the woman actually had eclampsia and blindness, but she recovered and went to term, the sight improving rapidly before delivery.

Pregnancy is undoubtedly the beginning of many serious eye troubles, and while it has been overlooked in the first pregnancy subsequent pregnancies increase the affection. No disease is improved by pregnancy and any woman who has retrogressive eye changes is certainly made worse.

The essayist has said that in acute nephritis, with evidence of injured vision, the pregnancy should be interrupted dependent upon the time of the pregnancy and extent of lesion. Dr. Paddock thought that under such conditions it might be better to empty the uterus regardless of the time of pregnancy. If a few days' treatment of the toxemia did not change the patient's condition there would certainly be no excuse for not making a termination whatever the time in pregnancy. He agreed with Dr. Chance that hysteria is quite prevalent, but he had seen only a few cases of hysteric amblyopia in pregnancy and in these cases the clinical findings are constant and easily diagnosed. We must always remember never to accept the hysterical diagnosis unless we have entirely cleared up all other conditions.

Dr. W. A. Newman Dorland believed that advanced eye symptoms could be very frequently eliminated if the cases are kept under careful observation. The early examination of the urine, not only for albuminuria, but for a lessened urinary toxicity is very helpful. The axiom, lessened urinary toxicity means increased hemic toxicity, must be borne in kind. That means a rise in the blood pressure, and this starts just as soon as the so-called kidney of pregnancy begins. The kidney is not the seat of a nephritis, but it is a starved kidney, the cells failing to act, not because they are over-worked, but because they are not getting enough blood to work upon. The renal cells are deprived of their blood by arteriole contraction and fail to functionate. The primary action of the toxins in the blood is an almost instantaneous arteriole contraction. This can be proved by administering to any of these patients who are showing a lessened excretion of urine—before there are any eye symptoms—a vasomotor dilator, such as the fluid extract of veratrum viride and these renal cells which have not been functionating will within three to four hours throw off two or three quarts of urine. An over-worked kidney could not do that. The eye symptoms, therefore, result from an accumulation of the toxins in the blood and these can be eliminated by carefully watching the condition of the urine from the very start of pregnancy.

## MACOUPIN COUNTY

The Macoupin County Medical Society met in regular session in the Methodist church at Scottville, July 24, 1917, and was called to order by President G. E. Hill, of Girard.

A committee consisting of Drs. McMahon, Kennedy and W. L. Powell, was appointed to draft resolutions regarding the pauper practice.

The following resolutions regarding paupers were unanimously passed by the Society:

The Macoupin County Medical Society at its meeting held at Scottville, Illinois, July 24, 1917, believing that the best interests of the profession, of the poor people and of the county at large will best be served we resolve:

That services to the poor be rendered at the regular rates and in conformity with the Schedule of Fees of Macoupin County Medical Society and that we shall in future expect the Supervisor of each township to O. K. all bills as rendered, and be it further

*Resolved,* That a copy of these resolutions be given to the chairman of the Committee of Claims of the Board of Supervisors of Macoupin County.

The following resolutions regarding the Practice of Physicians who have entered the U. S. Service; were unanimously passed:

Recognizing the patriotic spirit that should control the members of the medical profession in their actions at the present time and to avoid placing a punishment on patriotism, your committee proposes the following resolutions:

*First,* That the officers and members of Macoupin County Medical Society pledge themselves to preserve intact the practice of any of their members while engaged in this gigantic struggle for freedom and deliver over to him the same on his return from such service, so far as the same shall be in their power.

*Second,* That every member of this society shall ascertain whether a patient being treated, has had any member of our society as his physician prior to his entering service, and the physician so treating him shall make it known that he can only treat him until the return of the member from the front.

*Third,* That every physician so called or serving will receive from his colleagues one-third of the gross collections from such patients as are designated as his patients, such to be made monthly to the member or his family as he may desire.

Dr. John Deal, of Springfield, gave a very interesting address on the subject, "Conservation of Vision."

Dr. John Greene, Jr., of St. Louis, gave a very able and instructive address on the subject "Practical Methods in Ophthalmic Emergencies."

Dr. J. W. Berryman, of Scottville, gave an interesting address on the subject, "Typhoid, Its Management and Care."

A rising vote of thanks was given to the three physicians for their papers and to the physicians of Scottville for their royal welcome.

The meeting was a grand success, over forty being present and the program being much above the average.

The meeting adjourned to meet at Gillespie in September.

T. D. Doan, *Secy.*

## OGLE COUNTY

The Ogle County Medical Society met at the Byron High School Room in Byron, July 18, 1917.

The president not being present, Vice-president Johnson called the meeting to order.

Fifteen members and seven visitors were present.

The following officers were duly elected for the coming year: President, A. H. Beebe, Stillman Velley; vice-president, J. A. Johnson, Byron; secretary-treasurer, J. T. Kretsinger, Leaf River; delegates, A. H. Beebe; alternate, F. E. Inks, of Polo.

Dr. B. A. Cottlow, of Oregon, was elected to membership.

Program: Dr. O. W. McMichael, of Chicago, superintendent of the Naperville Tuberculosis Sanitarium and an expert on tuberculosis, presented an extremely interesting lecture on "The Early Diagnosis of Incipient Tuberculosis." This subject was ably discussed by Drs. Lindholm, Maloney, Patterson, Pennimen, Beebe, Beard, Beveridge and Johnson, Dr. McMichael closing.

Dr. Gordon G. Burdick, Chicago, Professor of Physiological-Therapeutics, gave an excellent lecture on "Life Extension" illustrated with lantern slides. Discussion followed by Drs. McMichael, Beebe, Johnson and Wilgus.

Dr. L. A. Beard, chairman of sub-committee on tuberculosis war defense, Mrs. Annie G. Graham, secretary and W. A. Brayton, vice-president of the Ogle County Tuberculosis Sanatorium were present. Dr. Beard gave a talk on the need of an early diagnosis of tuberculosis of drafted men before they are sent to France.

On motion of Dr. Beveridge a rising vote of thanks were given Drs. McMichael and Burdick for their appreciative service.

The high standing of the speakers and the enthusiasm shown by the members made this meeting one of the best ever held by the society.

Adjourned to meet in regular session the third Wednesday in October, 1917.

Dr. J. T. Kretsinger, *Secy.*

## Personals

Dr. Frederick M. Blome has removed from La Hogue to Lansing, Mich.

Dr. Henry F. Becker, Danville, has recovered from a recent appendectomy.

Dr. and Mrs. John Edwin Rhodes, Chicago, spent August on North Manitou Island.

Dr. Edward L. Moorhead has been appointed attending surgeon to the Mercy Hospital.

Dr. John L. Porter has been appointed a member of the commission on military orthopedics.

Dr. J. E. Meloy has been appointed surgeon for the Illinois Central Railroad at Peoria, Ill.

Dr. Clarence L. Wheaton, Chicago, has been commissioned major in the Medical Reserve Corps.

Dr. Nathan S. Davis III, Chicago, has been commissioned a captain in the Medical Reserve Corps.

Captain E. C. Franing, Galesburg, has been ordered to report at Camp Dodge, Des Moines, Iowa.

First Lieutenant Lester J. Palmer, M. R. C., has been ordered to Camp Grant as roentgenologist.

Dr. Maskel Lee, Atlanta, was struck by an automobile recently but was not permanently injured.

Dr. R. A. Noble, Bloomington, has been ordered to report at Fort Benjamin Harrison, Indiana.

Dr. C. C. Wehn, first lieutenant, M. R. C., Penfield, has sold his practice to Dr. Crookshank of Chicago.

Dr. G. B. Greenbaum, West Frankfort, stepped on the wrong lever in his auto and drove right into a movie theater.

Dr. Howard T. Child, Kankakee, has been elected pathologist to the State Hospital for the Insane, Norristown, Pa.

"Dr." Wm. Manella, said to hail from San Francisco, is spending a year in the bridewell, on a sentence for swindling.

Major Herman H. Tuttle, M. C., Ill. N. G., Springfield, has been appointed sanitary inspector of Camp Logan, Houston, Texas.

Dr. Walter H. Watterson, Oak Forest, has been appointed medical superintendent of the Municipal Tuberculosis Sanatorium.

Capt. W. G. Alexander, Evanston, has been transferred to Camp Dodge, Des Moines, Iowa, in charge of the department of roentgenology.

Dr. Wm. E. Park, Rockford, has been commissioned first lieutenant in the Medical Reserve Corps and assigned to Fort Benjamin Harrison.

Drs. A. S. Hunt and H. F. Threlkeld of Jerseyville, first lieutenants, M. R. C., have been ordered to Fort Benjamin Harrison for instruction.

Dr. Harry R. Hoffman, chief alienist of the Bridewell, has been ordered to report to Ann Arbor for military service as a member of the psychiatric unit.

Dr. Arthur Lederer, formerly of the Sanitary District of Chicago, has been appointed director of the State Hygienic Laboratory of West Virginia, Morgantown.

Dr. D. S. Hager has completed the annual re-examination for sight, color-sense and heart of the trainmen of the Santa Fe System, on the eastern and western lines.

Dr. C. H. Anderson, McLeansboro, appointed by Governor Lowden, Superintendent of the Southern Illinois Hospital for the Insane, has sold his paper, the *Leader*.

Captain R. H. Garm, Beardstown, and First Lieutenants E. P. Coleman, Canton, R. B. Miller and F. C. Walsh, both of Rock Island, have been called to Fort Benjamin Harrison.

Drs. Frank P. Norbury, Springfield, and Edwin C. Hayes, Urbana, and Dr. E. C. Dudley, Chicago, have been appointed members of the State Board of Public Welfare Commissioners.

The indictment against Dr. George B. Schwachtgen, Aurora, for failure to report a case of ophthalmia in an infant, was nolle prossed at the request of State's Attorney Philips of Elgin.

Dr. Charles F. Read, formerly superintendent of the Watertown State Hospital, has been appointed superintendent of the Chicago State Hospital, Dunning, to succeed Dr. George Leininger.

Dr. Alice Barlow-Brown, Winnetka, has received an appointment abroad, and expects soon to leave for Compiegne, France, to work under the Chicago branch of the American Fund for French Wounded.

Dr. James M. Neff has returned to Chicago after an absence of more than two years at the British Base Hospital, Etaples, France. Dr. Neff has been commended in general orders for superlative service.

Major Gustavus M. Blech, commanding Illinois Field Hospital No. 2, has been appointed assistant to the chief surgeon of the Thirty-third Division, Camp Logan, Houston, Texas, and left for his new post of duty, August 21.

Dr. Harry A. Pattison, Rockford, has been appointed, by the National Association for the Study and Prevention of Tuberculosis, a medical field secretary to organize preventive work in the cantonment camps, and to follow up the men rejected for the army on account of tuberculosis.

Dr. Ralph T. Hinton, lately superintendent of the South Bartonville State Hospital, has been reappointed superintendent of the Northern Illinois Hospital for the Insane at Elgin. Dr. R. A. Goodner, managing officer of the Kankakee State Hospital, succeeds Dr. Hinton at South Bartonville.

The following physicians will join Base Hospital 12 in France, under Dr. F. A. Besley, in due time: Drs. Lyman Copps, Charles A. Short, Herbert B. Woodward, W. Stanley Gibson, Daniel R. T. Cole, Harry Siewerth, J. F. Jaros, C. E. Lindsay and J. Roscoe Harris. Twenty Red Cross nurses and forty-seven civilians are in the party.

Dr. Edward S. Godfrey, Jr., has resigned as director of the bureau of communicable diseases of the state board of health, to accept a position in the sanitary department of the New York State Department of Health. He has been assigned to the district comprising Albany and Rensselaer counties.

## News Notes

—Dentists are refusing to extract teeth for men of draft age.

—The Cook County Hospital is said to be facing a serious shortage of internes on account of the draft.

—All the doctors in Murphysboro, nineteen in all, have taken the Medical Reserve Corps' examination and pledged themselves to respond to service when called.—*Victoria Herald.*

—Five internes recently left the Henrotin Hospital on account of alleged pro-German prejudices of the management, which, however, is denied by the superintendent, Dr. John H. Chew.

—It is reported that fifty registrants in district 56, Chicago, temporarily rejected for physical defects, have been fitted for service through free surgical and dental service given by the physicians and dentists.

—The malingerers are having a fierce time with the medical examining boards. One registrant feigned deafness, but when an examiner called him a hard name, he threatened to "knock his head off." He was accepted and certified for service.

—The July meeting of the Montgomery County Medical Society was held in Coffeen Tuesday evening, July 31. Dr. F. W. Barry read a paper on "Pellagra." Dr. H. L. Yengst, of Litchfield, was elected a member of the Society.

—Dr. G. Carl Huber, professor of anatomy in the University of Michigan, Ann Arbor, recently delivered an address on "Early Stages in Mammalian Development," before the faculty and students of the graduate summer quarter in medicines of the University of Illinois.

Amante Rongetti was found guilty of having sold a false medical diploma recently, and was fined $2,000 in Judge Fitch's court. Rongetti was indicted April 24, 1916, following action taken by the Illinois State Board of Health. Dr. Gaetano, a codefendant, was acquitted.

—At the meeting of the Rock Island County Medical Society, August 12, Dr. D. N. Eisendrath, Chicago, gave an address: "Why Do We Have Symptoms After Gall Bladder Operations?" Dr. E. M. Sala, Rock Island, discussed the subject: "Passive Motion in the Treatment of Joint Injuries."

—Menard County, of which Petersburg is the county seat, has been announced as the winner of the Red Cross flag, made by the wife of the governor, to be awarded to the county obtaining the greatest proportional membership for the American Red Cross. Menard County, with a population of 12,796, has enrolled 3,780 as members.

—A clinic on nervous and mental diseases was held at the Watertown State Hospital, August 23, under the auspices of the Iowa and Illinois Central District Society. Cases of special interest were selected and presented by Drs. Julius Grinker, Chicago; Charles F. Reed, superin-

tendent of the hospital, and Edward A. Foley, first assistant.

—The University of Chicago Ambulance Company No. 3, under command of Capt. Elbert Clark, has been called into actual service and entrained for Allentown, Pa., August 20. The company has a personnel of 180, and takes with it six ambulances, four of which were donated by the friends of the institution and two by the American Red Cross. It also has a motor laboratory donated by the students of the university, and five kitchens on wheels.

—The medical detachment of the Third Illinois Infantry, mobilized at Rockford, has the following officers: Major Arthur E. Lord, Plano, and Lieuts. Pliny R. Blodgett, Harvard; Harry H. Davis, Monroe Center, and Fred E. Scheppler, Aurora. Two of the sergeants, Hospital Corps, are sons of the late Major Carlton E. Starrett, who served with the regiment during the war with Spain. The Adjutant-General has announced the appointment of the following administrative staff for the Medical Department: Lieut.-Col. Jacob Frank, Chicago; Major John A. Wheeler, Auburn, and Major George U. Lipschulch.

—Northwestern University Medical School announces the following faculty appointments for 1917-1918: Drs. Frederick G. Harris, professor of dermatology and syphilology, succeeding Prof. Joseph Zeisler, who becomes professor emeritus of dermatology; Frank C. Becht, professor of pharmacology, succeeding Prof. Hugh McGuigan; John Ridlon, honorary professor of orthopedic surgery; John L. Porter, professor of orthopedic surgery; Herbert A. Potts, professor of oral surgery; Frank E. Simpson, adjunct clinical professor of dermatology; Charles P. Caldwell, adjunct clinical professor of medicine; Edward L. Moorhead, adjunct clinical professor of surgery.

—The state board of health has announced the creation of four special health districts, each embracing a zone adjacent to a military or naval camp site. These districts are as follows:

1. Camp Grant district, including the city of Rockford: Medical officer, Dr. Charles E. West, Springfield; sanitary health officer, P. H. Cooney, Chicago.

2. Great Lakes — Fort Sheridan district: Health officer, Dr. John Kappelman, Mt. Vernon; sanitary officer, Dr. Jerome Smejkal, Chicago.

3. Lincoln-Lowden District, including the city of Springfield: Medical health officer, Dr. John J. McShane; sanitary officer, Edward Cowles.

4. Camp Chanute Aviation District, including Rantoul: Medical and sanitary officer, Dr. John J. McShane, Springfield.

The executive officer of each of these districts will be the medical health officer, and will report directly to the secretary of the state board of health.

## Marriages

MAX PETER GETHNER, M. D., to Miss Lillian Livshis, both of Chicago, recently.

ISIDORE E. KOHN, M. D., to Miss Dolly Newman, both of Chicago, August 12.

ROSE E. ELVIDGE, M. D., Longview, to Miss Grace Howard, at Tuscola recently.

ROBERT H. HERBST, M. D., Chicago, to Miss Marion Mabel Steeves of Boston, recently.

THOMAS B. KELLY, M. D., to Miss Esther Allais, both of DuQuoin, recently.

MILTON EDWARD ROSE, M. D., Chicago, to Miss Dorothy J. Shade of Decatur, Ill., July 21.

WILLIAM C. SCHIELE, M. D., Galena, Ill., to Miss Anna Reifsteck of Hanover, August 15.

NICHOLAS ISRAEL FOX, M. D., Chicago, to Miss Evelyn Adele Hattis of Oak Park, Ill., July 5.

LEON WOODFORD KELSO, M. D., Paxton, Ill., to Miss Eleanor Watts of Carlinville, Ill., at Paxton, July 21.

ASST. SURG. HUGH JOHN DUFFY, U. S. Navy, Chicago, to Miss Jessie Sullivan of Denver, at Chicago, August 9.

## Deaths

RICHARD SOBEY, Chicago (license, Illinois, 1895); died at his home, July 31.

JAMES A. BRADFORD, M. D., Macedonia, Ill.; University of Louisville, Ky., 1910; aged 33; died at his home, June 28.

JOHN CHARLES MCENERY, M. D., Chicago; Rush Medical College, 1897; aged 48; died at his home, about July 9.

LOGAN O. COX, M. D., Hallidayboro; University of Tennessee, Memphis, 1882; aged 60; died in East St. Louis, August 9.

FERRE JOEL WALKER, M. D., Maquon, Ill.; College of Physicians and Surgeons, Keokuk, Ia., 1896; aged 51; died in Brunswick, Mo., April 13.

DAVID HENRY STERN, M. D., Chicago; Eclectic Medical College of the State of New York, 1892; aged 71; died at his home in Chicago, August 24.

GEORGE W. HUGHES, M. D., Armstrong, Ill.; Illinois Medical College, Chicago, 1900; aged 44; a Fellow of the American Medical Association; died at his home, June 9.

ROBERT ANDREW KERR, M. D., Peoria, Ill.; Rush Medical College, 1881; aged 60; formerly a member of the Illinois State Medical Society; died in Petoskey, Mich., August 3.

GEORGE ELMER BUSHNELL, M. D., Rochelle, Ill.; Hahnemann Medical College, Chicago, 1885; aged 52; formerly a Fellow of the American Medical Association; died at his home, July 17.

HANNAH LEAH NICHOLS SCHMALLING, M. D., Fulton, Ill.; University of Michigan, Ann Arbor, 1885; aged 54; a Fellow of the American Medical Association; died at her home, July 14.

LEWIS MARION PERRY, M. D., Broadwell, Ill.; University of Louisville, Ky., 1868; aged 80; formerly a Fellow of the American Medical Association; died at his home, July 17, from neuritis.

ALBERT EUGENE GREER, M. D., Brownstown, Ill.; Marion-Sims Medical College, St. Louis, 1895; aged 49; a Fellow of the American Medical Association; died at his home, July 3, from pneumonia.

FREDERICA R. BAKER, M. D., Chicago; Hahnemann Medical College, Chicago, 1895; aged 52; formerly a member of the Illinois State Medical Society; died at her summer home, near Peacock, Mich., August 7.

EUGENE FRANCOIS MARGUERAT, M. D., Chicago; Rush Medical College, 1895; aged 47; a member of the Illinois State Medical Society; died at his home in Chicago, August 9, from chronic gastro-enteritis.

JOHN E. BROCK, M. D., Arkansas City, Kans.; Rush Medical College, 1890; aged 56; a Fellow of the American Medical Association; a member of the Kansas State Medical Society and the Cowley County, Kansas Medical Society; died at his home from nephritis, August 19, 1917.

FREDERICK A. RETTIG, M. D., Chicago; Rush Medical College, 1894; aged 48; a Fellow of the American Medical Association and president of the staff of Alexian Brothers Hospital, with which he had been associated for twenty-five years; died at his home, July 21, from myocarditis.

BLAKE EDWIN RAY, M. D., Cuba, Ill.; College of Physicians and Surgeons, Chicago, 1913; aged 26; a member of the Illinois State Medical Society, and secretary-treasurer of the Fulton County Medical Society; died at the home of his parents in Cuba, July 25, from acute nephritis.

## Book Notices

THE ROENTGEN DIAGNOSIS OF DISEASES OF THE ALIMENTARY CANAL. By Russell D. Carman, M. D., Head of Section on Roentgenology, Division of Medicine, Mayo Clinic and Albert Miller, M. D., First Assistant in Roentgenology at the Mayo Clinic. Octavo of 558 pages with 504 original illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, $6.00 net; half Morocco, $7.50 net.

The authors of this work have covered the entire digestive tract based on their experiences as roentgenologists to the Mayo Clinic. They have included a great many case reports in an endeavor to bring out the salient points under discussion. Their errors and mistakes have not been neglected. They have been cited so that the reader can evade making the same errors.

The illustrations, which are profuse, help to simplify the text materially. References, at least the most important, are inserted. Altogether we believe that the authors can be well proud of their first effort, as it is undoubtedly one of the most complete text books on this subject.

THE MEDICAL CLINICS OF NORTH AMERICA. Volume 1 Number 1 (The Johns Hopkins Hospital Number, July, 1917). Octavo of 193 pages, 14 illustrations. Philadelphia and London, W. B. Saunders Company, 1917. Published Bi-monthly. Price per year: Paper, $10.00; cloth, $14.00.

The new edition of Medical Clinics, bearing the name of The Medical Clinics of North America, is started off by the staff of Johns Hopkins Hospital. The general features of the clinics remain the same, excepting that the contributions are from various medical centers, instead of from Chicago only, as formerly. We believe this inclusion will greatly enhance the usefulness and worth of the clinics. The present volume has as contributors Drs. Janeway, Barker, Mosenthal, Futcher, Hamman and Brown. Some of the titles are: Hodgkin's Disease, Postural Albuminuria, Meningitis, Hypertension, Acromegaly and Gastroptosis.

THE BABY'S FOOD. By Isaac A. Abt, M. D., Professor of Diseases of Children in the Northwestern University Medical School, Chicago. 12 mo. of 143 pages. Philadelphia and London, W. B. Saunders Company, 1917. Price $1.25 net.

This is a handy volume for the physician as well as the nurse in the preparation of babies' foods. All recipes and instructions are fully given so that any food proper for babies may be made up. A chapter on the various kinds of baths for babies is also included. The recipes are not original, but a collection of those that have proved valuable in Dr. Abt's experience. It should be a great aid in the teaching of mothers the proper diet and method of preparation.

PRACTICAL MATERIA MEDICA AND PRESCRIPTION WRITING WITH ILLUSTRATIONS. By Oscar W. Bethea, M. D., Ph.G., F. C. S., Associate Professor of Ma-

teria Medica and Instructor in Prescription Writing, Tulane University of Louisiana; formerly Professor of Chemistry and Professor of Pharmacology, Miss. Medical College, etc. 2nd Revised Edition. F. A. Davis Co., Philadelphia. Price, $4.50.

The changes brought about by the latest revision of the U. S. P. necessitated the issue of this second edition. Many new drugs are added, and some have been dropped.

The division of this work is in three parts: Part one, Materia Medica; Part two, Prescription Writing; Part three, Illustrations showing incorrect and correct forms in prescription writing with actual examples. It is well gotten up and should prove very useful to the medical students.

THERAPEUTICS, MATERIA MEDICA AND PHARMACY, The Special Therapeutics of Diseases and Symptoms, The Physiological and Therapeutical Actions of Drugs, The Modern Materia Medica, Official and Practical Pharmacy, Prescription Writing and Antidotal and Antagonistic Treatment of Poisoning. By Samuel O. L. Potter, M. D., M. R. C. P. London, formerly Professor of the Principles of Practice of Medicine in the Cooper Medical College of San Francisco; Author of the "Quiz-Compends of Anatomy" and "Materia Medica," etc. 13th edition revised and enlarged by Elmer H. Funk, M. D., Associate Professor in Medicine, Jefferson Medical College, Philadelphia; Medical Director and Physician in charge of the Department for Disease of the Chest of the Jefferson Hospital, etc. P. Blakiston's Son & Co., Philadelphia. Price, $6.00.

This new edition of Potter, which has been a standard text book for years, brings it to date. The various changes, additions and omissions of the U. S. P. have been observed closely, likewise of the N. F. As a standard, up-to-date and complete work, it can be safely used as an authority.

POLIOMYELITIS IN ALL ITS ASPECTS. By John Ruhrah, M. D., Professor of Pediatrics, University of Maryland Medical School and the College of Physicians and Surgeons; Consulting Pediatrician to Bayview Hospital, etc., and Erwin E. Mayer, M. D., First Lieutenant in the Medical Officers Reserve Corps, U. S. Army; Formerly Senior Resident Physician at the Mercy Hospital, etc. Illustrated with 118 engravings and 2 plates. Lea and Febiger, Philadelphia & New York. Price, $3.25.

This book is an important addition to our knowledge of this much dreaded and much discussed disease. It is a thoroughly practical as well as scientific book, and can be depended upon thoroughly in the study of this condition. The name of the senior author is a guarantee of its worth. It is one of the best books on this subject, and cannot be too highly recommended.

FIRST LESSONS IN SPOKEN FRENCH FOR DOCTORS AND NURSES. By Ernest H. Wilkins, Algeron Coleman and Ethel Preston. The University of Chicago Press, Chicago. Price, $0.50; postpaid, $0.54.

This is an interesting little volume gotten up especially for doctors and nurses who expect to serve in France. It is small enough to carry in the pocket, and its contents are presented simply. It will not make one proficient, but as a starter, and for use in hospitals, it should prove useful.

NUTRITION AND CLINICAL DIETETICS. By Herbert S. Carter, M. A., M. D., Associate in Clinical Medicine, Columbia University; Associate Attending Physician to the Presbyterian Hospital; Consulting Physician to the Lincoln Hospital, New York, and Paul E. Howe, M. A., Ph. D., Assistant of Biological Chemistry, Columbia University, New York, and Howard H. Mason, A. B., M. D., Instructor in Diseases of Children, Columbus University, New York; Associate Attending Physician to the Presbyterian Hospital; Attending Physician to the Ruptured and Crippled Hospital, New York. Price, $5.50. Lea & Febiger, Philadelphia and New York, 1917.

To those wishing to study the scientific together with the practical side of dietetics, this volume by Doctors Carter, Howe and Mason will prove useful. It is one of the most practical works we have seen dealing with this particular subject.

The first part of the book deals largely with physiology, digestion and metabolism. Several chapters are devoted to foods and food values. Feeding of infants and invalids in general is discussed. A large portion of the volume is devoted to diet and feeding in all the diseases where special dietary is of service.

This work is scientific, yet not so technical as to be either tedious or difficult to understand. It covers a large field in as brief a manner as is consistent with clearness and completeness.

Every nurse, especially, should possess a copy and study it, as often nurses are sadly deficient in the matter of foods and food preparation. The book, however, is intended for physicians.

PRACTICAL TREATMENT, Volume IV. By 76 eminent specialists. Edited by John H. Hussed, Jr., M. D., Associate in Medicine, University of Pennsylvania; and Thômas C. Kelly, M. D., Instructor in University of Pennsylvania. Desk Index to the complete set of four volumes sent with this volume. Octavo 1,000 pages. Illustrated. Philadelphia and London, W. B. Saunders Company, 1917. Cloth, $7.00 net; half morocco, $8.50 net.

This fourth volume of Musser-Kelly brings the complete system up to date. A perusal of its pages discloses all the newest advances in the treatment of disease. Practically all the contributors of this volume were contributors of the previous ones, each retaining his special section, allowing him to bring his own particular article thoroughly up to date. Some of the additions are quite extensive, others only a few lines, depending upon the importance of the newer things or methods in treatment. It is a welcome addition to the previous volumes.